

VOLUME II – TECHNICAL REQUIREMENTS

SECTION 1 PROJECT DESCRIPTION

1.1 GENERAL

The Project consists of the comprehensive development, including design, construction, financing, operation and maintenance, of academic, administrative, research, recreational, student residence and student services buildings, furniture, fixtures and equipment, utilities and infrastructure, outdoor recreation and open space areas, and associated roadways, parking and landscaping, for the University of California, Merced. The Project is an expansion of the existing UC Merced campus.

1.2 PROGRAM

1.2.1 The program for the Project is set forth in Appendix 1 (Program) of the Technical Requirements (the “Program”), which is comprised of Appendix 1-A (Program Summary) and Appendix 1-B (Program Elements).

1.2.2 Appendix 1-A (Program Summary) provides a summary of the Program, including Master Plan Only Spaces.

1.2.3 Appendix 1-B (Program Elements) identifies all interior spaces and exterior spaces that comprise the Program (except Master Plan Only Spaces). Each interior space and exterior space identified in Appendix 1-B is an “**Area**” within the Facilities. Appendix 1-B identifies Areas by reference to an “**Area Type**,” which is a grouping of Areas that share certain specific design and construction requirements. For each Area Type, Appendix 1-B specifies an Area Data Sheet, an FF&E package and an IT Equipment Package, and indicates the required quantity of Areas for each Area Type and the minimum required ASF per Area and per Area Type.

1.2.4 Developer shall design and construct the Facilities to include, at a minimum, the ASF and quantity for each Area Type identified in Appendix 1-B (Program Elements).

1.2.5 Developer shall design, construct, operate, maintain and renew the Facilities to support and accommodate the Program.

1.3 AREA NAMES

Appendix 1-B (Program Elements) assigns specific names to Area Types, and groups Area Types by Program Category, Program Subcategory and Program Unit. The Program Category, Program Subcategory, Program Unit and Area Type names identified in Appendix 1-B are used throughout the Technical Requirements to identify specific Areas. The format used to identify specific Areas is “*Program Category: Project Subcategory: Program Unit: Area Type.*”

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SECTION 2 – PROJECT REQUIREMENTS AND PROVISIONS FOR WORK

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VOLUME II – TECHNICAL REQUIREMENTS

SECTION 2 PROJECT REQUIREMENTS AND PROVISIONS FOR WORK

2.1 ABBREVIATIONS AND DEFINITIONS

2.1.1 Abbreviations

Abbreviations used in the Technical Volumes but not otherwise defined in Appendix 1 (Abbreviations and Definitions) of the Agreement represent the full text shown:

AAMA	American Architectural Manufacturers Association
ABSL	Animal Bio Safety Level
ACAMS	Access Control and Alarm Monitoring Systems
ACUPCC	American College and University President's Climate Commitment
ADA	Americans with Disabilities Act
ADS	Area Data Sheets
ANSI	American National Standards Institute
ASF	Assignable Square Feet
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
AV	Audiovisual
AWWA	American Water Works Association
BACnet	Building Automation Control and Network
BDA	Bi Directional Amplifiers
BDF	Building Distribution Frame
BHMA	Builders Hardware Manufacturers' Association
BMS	Building Management System
BPS	Baseline Project Schedule
BSL	Bio Safety Level
CAAN	Capital Asset Account Number
CAC	Ceiling Attenuation Class
CAD	Computer-Aided Design
CATV	Cable Television
CCTV	Closed Circuit Television
CD	Construction Documents
CEC	California Electrical Code
CFD	Computational fluid dynamics
cfm	Cubic Feet per Minute
CMMS	Computerized Maintenance Management System
CMU	Concrete Masonry Unit

CO ₂	Carbon Dioxide
CPE	Central Plant Expansion
CQAF	Construction Quality Acceptance Firm
CSC	Customer Service Center
CUPA	Certified Unified Program Agencies
D&C	Design & Construction
DAS	Distributed Antenna System
dBA	Decibels A-weighted
DC	Direct Current
DCFM	Designated Campus Fire Marshal
DD	Design Development
DMDCP	Data Management and Document Control Plan
DVD	Digital Video Disc
ECEC	Early Childhood Education Center
EH&S	Environmental Health & Safety
EIA	Electronic Industries Alliance
EIS	Environmental Impact Statement
EMCS	Energy Management & Control System
EMI	Electromagnetic Interference
EPA	Environmental Protection Agency
EPDM	Ethylene Propylene Diene Monomer
ERRC	Emergency Responder Radio Coverage
EV	Electric Vehicle
FDA	Food and Drug Administration
FDC	Fire Department Connections
fps	Fire Protection System
FPT	Functional Performance Test
FRP	Fiberglass Reinforced Polyester
FSC	Forest Stewardship Council
FTE	Full Time Equivalent
GFI	Ground Fault Interrupter
GHG	Greenhouse Gas
gpm	Gallons per Minute
GRAS	Generally Recognized As Safe
HD	High Definition
HDPE	High Density Polyethylene
HEPA	High-Efficiency Particulate Arrestance
HP	Horsepower
HVAC	Heating, Ventilating, and Air Conditioning
IAQ	Indoor Air Quality
IDF	Intermediate Distribution Frame
IESNA	Illuminating Engineering Society of North America
IGUs	Insulated Glass Units

IIC	Impact Insulation Class
IP	Internet Protocol
IPMVP	International Performance Measurement & Verification Protocol
IPTV	Internet Protocol Television
ISP	Inside Plant
IT	Information Technology
ITF	International Tennis Federation
kV	Kilo-Volts
kVA	Kilo-Volt Amps
KVAR	Kilo-Volt Amp Reduction
kWh	Kilowatt-Hour
LA	Laboratory Air
LAN	Local Area Network
LAN/WAN	Local Area Network/Wide Area Network
LC	Lucent Connector
LCA	Life Cycle Assessment
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
LF	Linear Foot or Linear Feet
LID	Low-Impact Development
LV	Laboratory Vacuum
MDF	Main Distribution Frame
MERV	Minimum Efficiency Reporting Value
MID	Merced Irrigation District
MPI	Master Painters Institute
NAM	Network Access Module
MW	Megawatt
NC	Noise Criteria
NCAA	National Collegiate Athletic Association
NDC	Network Distribution Center
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIH	National Institutes of Health
nm	Nanometer
NPDES	National Pollutant Discharge Eliminate System
NRC	Noise Reduction Coefficient
NSF	National Science Foundation
NVR	Network Video Recorder
OSP	Outside Plant
PBX	Private Branch Exchange
PDF	Portable Document Format
PDU	Power Distribution Unit
PG&E	Pacific Gas and Electric Company

PIV	Post Indicator Valves
PMCS	Project Management Controls System
PMP	Project Management Plan
PoE	Power over Ethernet
POV	Personal Occupant Vehicle
psf	Pounds per Square Foot
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
PW	Pure Water
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QMP	Quality Management Plan
QMS	Quality Management System
RFI	Radio-Frequency Interference
RPBP	Reduced Pressure Backflow Prevention
SCADA	Supervisory Control and Data Acquisition
scfm	Standard Cubic Feet per Minute
SD	Schematic Design
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SF	Square Foot or Square Feet
SMATV	Satellite Master Antenna Television
SMS	Short Message Service
STC	Sound Transmission Class
T&D	Transmission and Distribution
TES	Thermal Energy Storage
TGB	Telecommunications Grounding Busbar
TIA	Telecommunications Industry Association
TMGB	Telecommunications Main Grounding Busbar
UL	Underwriters' Laboratories, Inc.
UPS	Uninterruptible Power System
UTP	Unshielded Twisted Pair
UV	Ultraviolet
VA	Volt-Amps
VAV	Variable Air Volume
VCT	Vinyl Composite Tile
VDC	Volts Direct Current
VFD	Variable Frequency Drive
VMS	Video Management System
VOC	Volatile Organic Compounds
VSD	Variable Speed Drive
WAP	Wireless Access Point
WC	Water Closet

WUCOLS	Water Use Classification of Landscape Species
WUXGA	Wide Ultra Extended Graphics Array

2.1.2 Definitions

Definitions for certain capitalized terms used in the Technical Volumes but not otherwise defined in Appendix 1 (Abbreviations and Definitions) of the Agreement are set forth below:

Active Open Space means the spaces identified as “Active Open Space” in Appendix 4-A (Project Site Map) of the Agreement.

Actual Peak Water Demand means the peak amount of potable water consumed by the Facilities or Buildings, in an individual or aggregate basis, as the case may be.

Actual Water Consumption has the meaning set forth in Section 4.1.6.4 (Annual Water Consumption Analysis Report) of the Technical Requirements.

Advanced Coordination Days means the following Special Events:

- (i) Examination periods; and
- (ii) Housing moving days.

Annual O&M Report has the meaning set forth in Section 4.1.6.3 (Annual O&M Report) of the Technical Requirements.

Annual Water Consumption Analysis Report has the meaning set forth in Section 4.1.6.4(a) of the Technical Requirements.

Asset Inventory Report has the meaning set forth in Section 4.1.6.5 (Asset Inventory Report) of the Technical Requirements.

Audio Systems has the meaning set forth in Section 3.8.11.2.1 of the Technical Requirements.

AV/Building System Interface has the meaning set forth in Section 3.8.11.1.5 of the Technical Requirements.

AV Equipment includes those system and device types listed in the audio-visual equipment portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

AV Equipment Packages means the indicative list of AV Equipment to be procured, installed and commissioned by Developer for each Area Type set forth in Appendix 18-A (AV Equipment Packages) of the Technical Requirements.

AV Infrastructure includes the following related to the AV Equipment within the Facilities: (i) the physical support structures, such as backer plates, miscellaneous metal framing, hanger supports and mounting hardware, including any support systems provided by the AV Equipment manufacturer; (ii) mounting boxes for all flush, wall or floor set equipment, including wall mount touch panel controllers and AV outlet plates; and (iii) power outlets sized and located to support AV Equipment.

Black Start Testing means the procedures set forth in Section 3.11.9.9.3(f) of the Technical Requirements.

Black Water means wastewater that contains pathogens that must decompose before such water can be released safely into the environment. Such water typically contains human waste from toilet flushing.

Blue Water means the natural run-off (through groundwater and rivers).

Building Management System Sensors includes the system and device types listed in the building management system sensors portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

Campus Dispatch means the incident or emergency call management center operated by the Campus Police.

Campus Police means the University of California, Merced Police Department.

Commissioning Plan means the plan prepared by Developer in accordance with Section 2.7.3.6 (Commissioning Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Commissioning Professional has the meaning set forth in Section 3.11.3.1 of the Technical Requirements.

Commissioning Tests has the meaning set forth in Section 3.11.4.3.1 of the Technical Requirements.

Composite Utility Plan has the meaning set forth in Section 3.5.2.6(a) of the Technical Requirements.

Computerized Maintenance Management System (CMMS) has the meaning set forth in Section 4.4(f) of the Technical Requirements.

Construction Management Plan (CMP) means the plan prepared by Developer in accordance with Section 2.7.3.3 (Construction Management Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Construction Manager means the individual filling the position of Construction Manager for the Lead Contractor, which is a Key Personnel position as identified in Appendix 1 (Abbreviations and Definitions) of the Agreement.

Construction Quality Control Manager has the meaning set forth in Section 2.5.2.1(g) of the Technical Requirements.

Construction Quality Management Plan (CQMP) means the plan prepared by Developer in accordance with Section 2.5.1.4 (Construction Quality Management Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

CPE Commissioning Firm has a meaning set forth in Section 3.11.9.1.2(a) of the Technical Requirements.

CPE Commissioning Log has a meaning set forth in Section 3.11.9.7.3(a) of the Technical Requirements.

CPE Commissioning Meetings have a meaning set forth in Section 3.11.9.8 (CPE Commissioning Meetings) of the Technical Requirements.

CPE Commissioning Plan has a meaning set forth in Section 3.11.9.4 (CPE Commissioning Plan) of the Technical Requirements.

CPE Commissioning Process has the meaning set forth in Section 3.11.9.1 of the Technical Requirements.

CPE Commissioning Schedule has a meaning set forth in Section 3.11.9.4(e) of the Technical Requirements.

CPE Commissioning Specialist has a meaning set forth in Section 3.11.9.1.3(a) of the Technical Requirements.

CPE Engineer of Record has a meaning set forth in Section 3.11.9.1.5 (CPE Engineer of Record) of the Technical Requirements.

CPE Pre-Functional Checklists have a meaning set forth in Section 3.11.9.7.4 (CPE Pre-Functional Checklists) of the Technical Requirements.

CPE Systems Manual has a meaning set forth in Section 3.11.9.5 (CPE Systems Manual) of the Technical Requirements.

CPE Training Sessions has a meaning set forth in Section 3.11.9.2.1 (CPE Training Sessions) of the Technical Requirements.

Custodial Services has the meaning set forth in Section 4.1.3.1(d) of the Technical Requirements.

Customer Service Center Plan means the plan prepared by Developer in accordance with Section 2.7.4.3 (Customer Service Center Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Customer Service Center (CSC) Services has the meaning set forth in Section 4.3.1.1 (CSC Services Requirements) of the Technical Requirements.

Data Management and Document Control Plan means the plan prepared by Developer in accordance with Section 2.7.2.4 (Data Management and Document Control Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Data Outlet means a wall or floor connection outlet for network data, voice, telephone CATV or a combination of such uses.

D&C FF&E Cost means \$31,197,894, which is 90% of the Original FF&E Cost and which is the amount included in the D&C Contract Amount for FF&E and autoclave equipment.

D&C Sub-Plans means the plans prepared by Developer in accordance with Section 2.7.3 (D&C Sub-Plans) of the Technical Requirements as updated in accordance with the Contract Documents.

Debris includes both combustible and noncombustible wastes, such as leaves and tree trimmings and other similar materials that result from the performance of Construction Work, Renewal Work, Routine Maintenance and Demand Maintenance.

Design Management Plan (DMP) means the plan prepared by Developer in accordance with Section 2.7.3.2 (Design Management Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Design Quality Control Manager has the meaning set forth in Section 2.5.2.1(g) of the Technical Requirements.

Design Quality Management Plan (DQMP) means the plan prepared by Developer in accordance with Section 2.5.1.3 (Design Quality Management Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Developer's Web Portal means Developer's electronic system for managing Project-Related Service Requests and Campus-Related Call Requests.

Donor Areas means the Class of 2009 Gift & Wallace-Dutra Amphitheater and the Stephen D. Peterson Memorial Point, each identified in Appendix 13 (Project Site Donation Parcels) of the Technical Requirements.

Duress Alarm System has the meaning set forth in Section 3.4.5.7 (Duress Alarm System) of the Technical Requirements.

Emergency and Incident Management Services has the meaning set forth in Section 4.3.2 (Emergency and Incident Management Services) of the Technical Requirements.

Emergency Management and Disaster Recovery Plan (EMDRP) means the plan prepared by Developer in accordance with Section 2.7.2.8 (Emergency Management and Disaster Recovery Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Energy Management and Conservation Plan means the plan prepared by Developer in accordance with Section 2.7.2.9 (Energy Management and Conservation Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Environmental Management Plan (EMP) means the plan prepared by Developer in accordance with Section 2.7.2.6 of the Technical Requirements as updated in accordance with the Contract Documents.

Environmental Management Services has the meaning set forth in Section 4.3.6 (Environmental Management Services) of the Technical Requirements.

Essential O&M Services has the meaning set forth in Section 4.3.2(b) of the Technical Requirements.

Existing Campus Network (General) means the Owner's existing information technology network that provides LAN/WAN/Wireless connectivity for students, faculty, and residential communication at the Existing Campus.

Existing Chilled Water System has the meaning set forth in Section 3.5.7.3.1 (Existing Capacity, Demands and System Information) of the Technical Requirements.

Existing ECEC Building means the building located on the area identified as "ECEC Site" on the Project Site Map.

Existing Infrastructure means the buildings, Utilities, roads, bridges, tunnels and other infrastructure existing as of the Effective Date on the Existing Campus or the Work Site.

Existing Parking Lots has the meaning set forth in Section 3.4.3.1 (Existing Parking Lots) of the Technical Requirements.

Existing Purple Pipe System means the distribution system within the Existing Campus identified with the label "IRR" in Appendix 12 (Utilities Survey) of the Agreement.

Existing Rednet Network means the Owner's existing information technology network that provides secure connections for Building Management System Sensors, Security Components, Point of Sale Components and Fire Alarm Components at the Existing Campus.

Existing TCOMM Facility has the meaning set forth in Section 3.8.10.1(a) of the Technical Requirements.

Expanded Chilled Water System has the meaning set forth in Section 3.5.7.3.2 of the Technical Requirements.

Facilities Maintenance and Renewal Services has the meaning set forth in Section 4.4 (Facilities Maintenance and Renewal Services) of the Technical Requirements.

Facility Systems Manuals has the meaning set forth in Section 3.11.8 (Facility Systems Manuals) of the Technical Requirements.

FF&E Submittal has the meaning set forth in Section 3.9.1 of the Technical Requirements.

Fire Alarm Components includes the system and device types listed in the fire alarm components portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

Fire Alarm System has the meaning set forth in Section 3.8.7.2.1 (Fire Protection and Life Safety Systems Components) of the Technical Requirements.

Fire Protection and Life Safety Systems has the meaning set forth in Section 4.4.5.5.1 (Fire Protection and Life Safety Systems Elements) of the Technical Requirements.

Fire Safety Representative has the meaning set forth in Section 3.5.5.3(c) of the Technical Requirements.

Float is the amount of time a discrete work package or planning package in the Project Schedule can slip without affecting the early start of the successor discrete work package or planning package.

Food Service Design Professional has the meaning set forth in Section 3.7.15.1 (Food Service Design Professional) of the Technical Requirements.

Functional Performance Test has the meaning set forth in Section 3.11.9.9.3(d) of the Technical Requirements.

General PMP Sub-Plans means the plans prepared by Developer in accordance with Section 2.7.2 (General PMP Sub-Plans) of the Technical Requirements as updated in accordance with the Contract Documents.

Green Water means the precipitation on land that does not run off or recharge the groundwater, but is stored in the soil or temporarily on top of soil or vegetation.

Grey Water means wastewater generated by domestic equipment such as showers, sinks, washing machines, but not including toilet flushing.

Health and Safety Manager means a Developer's employee who is responsible for the implementation of Developer's Health and Safety Plan throughout the Term.

Health and Safety Representative means a Developer's employee, who reports directly to the Health and Safety Manager, and who is authorized to assume the full responsibilities of the Health and Safety Manager, including representation of the Health and Safety Manager to the Owner, Owner-Related Entities, or Governmental Entities, during such person's absence.

Integrated Pest Management Plan has the meaning set forth in Section 2.7.4.5 (Integrated Pest Management Plan) of the Technical Requirements.

Integrated Pest Management Services has the meaning set forth in Section 4.3.4 (Integrated Pest Management Services) of the Technical Requirements.

Integrated System Test has the meaning set forth in Section 3.11.9.9.3(e) of the Technical Requirements.

Interior Finishes means all applied finishes on the interior of the building, including on the interior side of exterior wall elements; wall finishes, including wall bases, trim, corner guards and other protection; floor finishes, including recessed mats and grilles; suspended ceilings and soffits, applied ceiling finishes; stair finishes and other finishes.

IT Infrastructure means all conduits and passive elements including wires, cables, connections, patch panels, Data Outlets, cabinets and equipment racks related to the Security Components, Point of Sale Components, Building Management System Sensors, Fire Alarm Components, Network Active Electronics and audio-visual active electronics within the Facilities.

IT Rooms has the meaning set forth in Section 3.8.10.1(f) of the Technical Requirements.

Landscaping Guarantee Period is the period commencing with the Landscaping Maintenance Period and ending on the one year anniversary of the Landscaping Maintenance Period.

Landscaping Installation Period is that period commencing with the planting of the first plants and ending on commencement of the Landscaping Maintenance Period.

Landscaping Maintenance Period is the period commencing with the acceptance of the planting Work as contemplated in Section 3.4.13.6.2 (Landscaping Maintenance and Replacement) of the Technical Requirements and ending 90 days thereafter.

Large Utility Shutdown means any disruption or disconnection of continuity (including abandonment) of any system, or branch system for any length of time that consists of

more than one Area. This includes electrical, water, chilled water, natural gas, fuel, fire alarm, security/ACAMS, sewer, communications, HVAC, and sprinkler systems.

LCA Report has the meaning set forth in Section 3.2.3.3 of the Technical Requirements.

LCA Tool has the meaning set forth in Section 3.2.3.2 of the Technical Requirements.

LEED Gold Certification has the meaning set forth in Section 3.2.6.1 of the Technical Requirements.

LEED Rating System has the meaning set forth in Section 3.2.6.1 of the Technical Requirements.

Load Bank Plan has the meaning set forth in Section 3.11.9.4(d)(v) of the Technical Requirements.

Mainline Point of Connection has the meaning set forth in Section 3.5.2(c)(i) of the Technical Requirements.

Master Maintenance Plan (MMP) has the meaning set forth in Section 4.2.1 (Master Maintenance Plan) of the Technical Requirements.

Master Plan Only Spaces has the meaning set forth in Section 3.4.1.1.1 of the Technical Requirements.

Minor Utility Shutdown means a singular event where there is one turn off and one turn on for one Utility.

Monthly O&M Report has the meaning set forth in Section 4.1.6.2 (Monthly O&M Report) of the Technical Requirements.

Monthly Progress Report means a monthly report submitted by Developer in accordance with Section 2.4.1.5.1 of the Technical Requirements.

Network Active Electronics includes the system and device types listed in the network active electronics portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

Noise Criteria (NC) means the maximum allowable sound pressure level as measured in decibels utilizing an A-weighting filter (dBA).

Nonconforming Work means Work that does not conform to the requirements set forth in the Contract Documents.

Operations and Maintenance Plan (O&M Plan) means the plan prepared by Developer in accordance with Section 2.7.4.1 (Operations and Maintenance Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Original FF&E Cost means \$34,352,122, which is the aggregate cost of the FF&E and autoclave equipment set forth in Appendix 19 (FF&E and Autoclave Equipment Costing) (inclusive of mark-ups) as of the Effective Date.

O&M Quality Management Plan (OMQMP) means the plan prepared by Developer in accordance with Section 2.5.1.5 (O&M Quality Management Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

O&M Sub-Plans means the plans prepared by Developer in accordance with Section 2.7.4 (O&M Sub-Plans) of the Technical Requirements as updated in accordance with the Contract Documents.

Owner's Web Portal means the web interface operated by the Owner in connection with facilities management activities that relate to the Existing Campus.

Passive Open Space means the spaces identified as "Passive Open Space" in Appendix 4-A (Project Site Map) of the Agreement.

Passive System Components includes the system and device types listed in the passive system components portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

Permanent Parking means any surface parking lot or parking structure to remain as part of the Project after the Construction Period has ended.

Planting Plan means the plan prepared by Developer in accordance with Section 3.4.13.7 (Planting Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

PMP Submittals means the Submittals described in Section 2.7.7 (Project Management Plan Approval) of the Technical Requirements.

Point of Sale Components includes the system and device types listed in the point of sale components portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

Primary Tree has the meaning set forth in Section 3.4.13.5.3(a)(ii) of the Technical Requirements.

Program has the meaning set forth in Section 1.2.1 of the Technical Requirements.

Program Category means the category listed under the Program Category column of Appendix 1-B (Program Elements) of the Technical Requirements.

Program Subcategory means the subcategory listed under the Program Subcategory column of Appendix 1-B (Program Elements) of the Technical Requirements.

Program Unit means the unit listed under the Program Unit column of Appendix 1-B (Program Elements) of the Technical Requirements.

Progress Meeting has the meaning set forth in Section 2.4.1.3 (Progress Meetings) of the Technical Requirements.

Project Management Plan means the plan prepared by Developer in accordance with Section 2.7 (Project Management Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Project Schedule Updates has the meaning set forth in Section 2.4.2.4 (Project Schedule Updates) of the Technical Requirements.

Project Waste includes Contaminated Materials, recyclable materials and solid wastes, such as building materials, packaging, trash, Debris, rubble and other similar materials, resulting from the performance of the Work, including Construction Work, Renewal Work, Planned Maintenance and Demand Maintenance.

Protected Trees means trees within the Tree Preservation Areas identified in Appendix 14 (Tree Preservation Areas) to the Technical Requirements and any other trees existing on the Work Site at NTP 2 and designated by the Owner as Protected Trees, to be preserved by Developer through the Construction Period and the Operating Period.

Public Information and Communications Plan means the plan prepared by Developer in accordance with Section 2.7.2.3 (Public Information and Communications Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Purple Pipe System means the distribution system to be designed and constructed in accordance with Section 3.5.6.3 (Purple Pipe System) of the Technical Requirements.

Quality Assurance means the processes, including audits, reviews and monitoring, pursuant to which Developer's personnel ensures that the quality of any and all Work, whether during the Construction Period or the Operating Period, is in accordance with the Quality Management Plan, and that the procedures established in such Quality Management Plan are followed by Developer's personnel throughout the performance of the Work.

Quality Assurance Manager has the meaning set forth in Section 2.5.2.1(f)(i) of the Technical Requirements.

Quality Control means the processes by which Developer's personnel performing any and all Work, whether during the Construction Period or the Operating Period, verify that the Work being performed is accurate and in compliance with the Contract Documents, through back checking, quantity calculations verification, or other similar means.

Quality Management Plan (QMP) means the plan prepared by Developer in accordance with Section 2.5 (Quality Management) of the Technical Requirements as updated in accordance with the Contract Documents.

Quality Management System (QMS) means the procedures and processes established in Developer's Quality Management Plan in accordance with Section 2.5.1 (Quality Management Plan Requirements) of the Technical Requirements.

Quarterly Quality Report means a quarterly report submitted by Developer in accordance with Section 2.5.2.1(i) of the Technical Requirements.

Redline As-Built Plans has the meaning set forth in Section 2.6.3.6.5 of the Technical Requirements.

Refrigerant Management Plan means the plan prepared by Developer in accordance with Section 4.4.5.2.5(b) of the Technical Requirements as updated in accordance with the Contract Documents.

Registered Professional means an individual or individuals holding a current and active license or certification for a certain profession, discipline, trade or skill within the State of California and who is able and willing to sign or certify Work, Plans or documents to the extent that such Work, Plans or documents fall within the capabilities, training or degree, in accordance with applicable Law, of such individual.

Remaining Useful Life has the meaning set forth in Section 5.6.2 of the Technical Requirements.

Renewal Work Plan means the plan prepared by Developer in accordance with Section 4.2.2 (Renewal Work Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Replacement Parts has the meaning set forth in Section 5.7 (Turnover of Replacement Parts) of the Technical Requirements.

Revenue Grade means an electric meter that meets the performance and accuracy criteria established by the ANSI C12.20-2010 standard.

Schedule Activities has the meaning set forth in Section 2.4.2.3.6 of the Technical Requirements.

Schematic Design Work Submittals means the submittals listed under Schematic Design (SD) Work Submittals in Appendix 4-B (Facilities Submittals), Appendix 4-C

(Central Plant Expansion Submittals) and Appendix 4-D (Utility Submittals) of the Technical Requirements.

Secondary Tree has the meaning set forth in Section 3.4.13.5.3(a)(iii) of the Technical Requirements.

Security Components includes those systems and devices listed in the security components portion of Appendix 17 (IT Responsibility Matrix) of the Technical Requirements, together with any related components and parts required for the proper functioning of such systems and devices.

Security Systems has the meaning set forth in Section 3.8.9 (Security Systems and Infrastructure) of the Technical Requirements.

Signage Master Plan has the meaning set forth in Section 3.8.13.1.3 of the Technical Requirements.

Specimen Tree has the meaning set forth in Section 3.4.13.5.3(a)(i) of the Technical Requirements.

Staffing Management Plan has the meaning set forth in Section 2.7.2.1 (Staffing Management Plan) of the Technical Requirements.

Stormwater Management Plan has the meaning set forth in Section 2.7.3.8 (Stormwater Management Plan) of the Technical Requirements.

Transition and Training Plan prepared by Developer in accordance with Section 2.7.5 (Transition and Training Plan) of the Technical Requirements as updated in accordance with the Contract Documents.

Transportation Buffer means the transportation buffer identified in Appendix 4-A (Project Site Map) of the Agreement.

Triple Net Zero means zero net energy, zero landfill waste, and zero net greenhouse gas emissions.

Utilities Management Services has the meaning set forth in Section 2.4.7.3 (Utilities Management Services) of the Technical Requirements.

Utility Corridors has the meaning set forth in Section 3.5.2.2(a) of the Technical Requirements.

Utility Devices has the meaning set forth in Section 3.5.2.3(a) of the Technical Requirements.

Widescreen Ultra Extended Graphics Array has the meaning set forth in Section 3.8.11.3.1(a) of the Technical Requirements.

Work Breakdown Structure (WBS) has the meaning set forth in Section 2.4.2.3.4 of the Technical Requirements.

Work Submittal(s) has the meaning set forth in Section 2.6.1.1 of the Technical Requirements.

2.2 SCOPE OF APPLICATION

Except as otherwise expressly provided in the Contract Documents, Developer shall comply with the requirements of this Section 2 (Project Requirements and Provisions for Work) of the Technical Requirements in the performance of all Work throughout the Term.

2.3 MANUALS AND GUIDELINES AND ADDITIONAL MANDATORY STANDARDS

2.3.1 Manuals and Guidelines

Developer shall comply with the professional and technical standards, codes and specifications, specified in Appendix 3 of the Technical Requirements (collectively, the “**Manuals and Guidelines**”). Except to the extent expressly provided otherwise in the Contract Documents, the Work shall be in compliance with the current edition, including updates, of the Manuals and Guidelines. With respect to the D&C Work, current edition is defined as the edition in place as of thirty (30) days prior to the Proposal Due Date.

2.3.2 Additional Mandatory Standards

Except as otherwise expressly provided in the Contract Documents, Developer shall comply with and observe the Additional Mandatory Standards.

2.4 REQUIREMENTS FOR MANAGEMENT OF THE WORK

2.4.1 Meetings and Progress Reporting

2.4.1.1 Construction Period and Operating Period

The requirements of this Section 2.4.1 (Meetings and Progress Reporting) apply throughout the Construction Period and the Operating Period, as applicable.

2.4.1.2 General Obligation to Participate in Meetings

Developer shall participate in meetings with Owner personnel and other agencies as required for resolution of design, construction, and/or operations and maintenance issues. These meetings may include design workshops, Dispute Review Board meetings, permit agency coordination, local government agency coordination, kick-off meetings, Progress Meetings, Utility meetings, Incident management meetings, commissioning and transition meetings.

2.4.1.3 Progress Meetings

- (a) In accordance with this Section 2.4.1.3 and Sections 4.12.2 (Meetings) and 6.4.2 (Meetings) of the Agreement, Developer shall conduct weekly progress meetings throughout the Term (each a “**Progress Meeting**”).
- (b) During the Design Work, Developer shall provide Owner with a plan of activities to be performed during the upcoming month.
- (c) During the Construction Period, Developer shall provide Owner with a six-week look ahead at activities to be performed during the upcoming six (6) weeks.
- (d) During the Operating Period, Developer shall provide Owner with a look ahead at the Planned Maintenance activities for the upcoming quarter.
- (e) Should portions of the Construction Period, the Design Work and/or the Operating Period be concurrent, a single Progress Meeting shall be held weekly and include representatives from each phase.
- (f) Developer shall prepare minutes of each Progress Meeting and provide a copy of the minutes to the Owner within five (5) Business Days after each Progress Meeting.

2.4.1.4 Other Meetings

- (a) Developer shall be available to meet with the Owner and other stakeholders when requested by the Owner.
- (b) Developer may coordinate meetings with Utility Owners and Governmental Entities as required in connection with the performance of the Work.
- (c) Meetings coordinated by Developer in accordance with Section 2.4.1.4(b) do not require the approval or attendance of the Owner, but Developer shall submit to the Owner a notice of such meeting as soon as reasonable, and in any event no later than three (3) days prior to such meeting.
- (d) Owner may attend any meeting coordinated by Developer in accordance with Section 2.4.1.4(b).
- (e) Developer shall produce meeting minutes for any meeting coordinated by Developer in accordance with Section 2.4.1.4(b).

Such meeting minutes shall be stored in the PMCS and provided to the Owner's Authorized Representative upon request.

- (f) The Parties shall coordinate meetings in accordance with Section 2.6.3.2 (Developer and Owner Collaboration during the Performance of the Design Work –Shoulder-to-Shoulder Review) of the Technical Requirements.

2.4.1.5 Progress Reports

2.4.1.5.1 Each calendar month, Developer shall submit to the Owner a progress report (each a “**Monthly Progress Report**”). The Monthly Progress Report shall:

- (a) describe the progress for the ongoing phases of the construction work;
- (b) include the Project Schedule Updates, as required by Section 2.4.2.4 (Project Schedule Updates) of the Technical Requirements;
- (c) include the Quarterly Quality Report, as required by Section 2.5.2.1(i) of the Technical Requirements;
- (d) include a list of Change Orders identified or executed during the period from the submission of the previous month's Monthly Progress Report and the submission of the current Monthly Progress Report, including their status;
- (e) identify any Relief Events that have resulted in an amendment to the Agreement in accordance with Section 10.2.10.1 of the Agreement during the period from the submission of the previous month's Monthly Progress Report and the submission of the current Monthly Progress Report, and describe status;
- (f) identify Schedule Activities planned for the upcoming period;
- (g) include, in accordance with Section 2.7.2.6.2(d) the environmental commitment tracking and reporting system report including all noncompliances with environmental commitments;
- (h) identify any unexpected environmental occurrences during the period from the submission of the previous month's Monthly Progress Report and the submission of the current Monthly Progress Report, including a summary of their resolution, mitigation and/or status;
- (i) identify problems and issues that arose during the period from the submission of the previous month's Monthly Progress Report and

the submission of the current Monthly Progress Report, including their status;

- (j) summarize resolution or mitigation raised in previous Monthly Progress Reports and their status;
- (k) identify Critical Path issues and proposed resolution; and
- (l) identify requested and/or required Owner's actions for the next month.

2.4.1.5.2 The Monthly Progress Report shall be submitted on eight and a half (8½)-inch by eleven (11)-inch sheets with any drawings included in such report being on no less than eleven (11)-inch by seventeen (17)-inch sheets. Developer shall provide the Owner's Authorized Representative with one (1) hard copy of each Monthly Progress Report and place one (1) electronic copy in PDF format in the PMCS.

2.4.2 Project Schedule – Construction Period

2.4.2.1 Preliminary Project Schedule

Developer shall submit to the Owner for review and approval, as contemplated in Section 4.6.3 of the Agreement, a preliminary project schedule consistent with the preliminary project schedule and construction logistics/sequencing approach included with Developer's Proposal and further developed in accordance with the Early Works Agreement (the "**Preliminary Project Schedule**").

2.4.2.2 Baseline Project Schedule

2.4.2.2.1 At least thirty (30) days prior to the target date for Owner's issuance of NTP 2, Developer shall prepare a Baseline Project Schedule ("**BPS**") based on the Preliminary Project Schedule, including a detailed design schedule and preliminary construction schedule for the Project, and deliver the Baseline Project Schedule to the Owner for Owner's review and approval.

2.4.2.2.2 The BPS shall be cost-loaded and include projections of man-hours for the D&C Work. The cost-loading and man-hour projections shall be applied to the first four levels of the WBS as shown in Appendix 2 (Work Breakdown Structure (WBS)) of the Technical Requirements. The BPS shall be developed using Primavera P6 software, or the latest edition of such software as approved by the Owner.

2.4.2.2.3 The Owner shall review and provide its rejection, comments, or approval within the time periods specified in Section 3.4.8 (Time Periods) of the Agreement. Developer shall resubmit a revised BPS, and any subsequent revision thereof, with a full disposition of all comments provided by Owner within the time period specified in Section 3.4.8 of the Agreement.

2.4.2.2.4 Once the Owner has approved the BPS, Developer shall keep the BPS in its original form as approved by the Owner, without any further revisions, for the remainder of the Construction Period. The BPS shall serve as the basis of comparison between such BPS and the then current Project Schedule, as subsequently revised and updated in accordance with the Contract Documents.

2.4.2.3 Project Schedule and WBS

2.4.2.3.1 The initial Project Schedule shall exactly match the Baseline Project Schedule, except that the Project Schedule will not include the cost-loading and man-hour projections required for the BPS in Section 2.4.2.2.2 of the Technical Requirements.

2.4.2.3.2 The Project Schedule shall include a separate narrative that describes Developer's proposed methods of operation for designing and constructing the Facilities. The narrative shall describe the general sequence of design and construction, the proposed Critical Path of the Project, and all construction milestone deadlines.

2.4.2.3.3 The Project Schedule shall include all major D&C Work activities required under the Contract Documents in sufficient detail to allow for effective monitoring and evaluation of the progress of the D&C Work, from issuance of NTP 1 to Final Acceptance. The Project Schedule shall be broken down into phases or elements of the D&C Work that reflect the construction phasing of the Facilities. The Project Schedule shall also include activities for Utility Adjustment Work, permit acquisitions, any maintenance during the Construction Period and interfaces with other projects, Owner-Related Governmental Entities and other Governmental Entities. For each major activity, Developer shall indicate the duration (in days) required to perform the activity and the anticipated beginning and completion date of each activity. In addition, the Project Schedule shall indicate the sequence of performing each major activity and the logical dependencies and inter-relationships among the activities. The D&C Work required for the Bellevue Intersection Improvements shall be included in the Baseline Project Schedule and Project Schedule. Schedule Activities related to the Bellevue Intersection Improvements shall be independent from and shall not be on the Critical Path of any Schedule Activities related to the design and construction of the Facilities. Any property acquisition required for the improvement of the intersection of Bellevue Road and Lake Road shall be included as an activity in the Project Schedule. The Project Schedule shall also fully incorporate the schedule and phasing of the Central Plant Expansion, including the CPE Commissioning Schedule.

2.4.2.3.4 The Project Schedule shall be organized consistent with the order of the design and construction phasing of the Project, and shall include a Work Breakdown Structure (WBS). The WBS must include, at a minimum, the scope of information and the levels of detail specified in Appendix 2 (Work Breakdown Structure (WBS)) of the Technical Requirements. Developer may present the WBS in an alternative format to that indicated in Appendix 2 (Work Breakdown Structure), provided that Developer includes in the WBS the scope of information and levels of detail required by this

Section 2.4.2.3.4, and the alternative format is acceptable to the Owner and consistent with Best Management Practice.

2.4.2.3.5 The WBS, as detailed in Appendix 2 (Work Breakdown Structure (WBS)), shall be described in the Project Schedule and the narrative as follows:

Level	Description	Intent and Examples
1	Master Project Summary	Rolls up level two (2) key milestones, identifies contractual delivery dates.
2	Major Program Elements	Summarizes key phase milestones for each major program element. Elements must include master planning, master site development, offsite improvements and each individual building or group of buildings for the various program components
3	Project Phases	Summarizes key deliverable milestones for phases of each program element, examples include design, permitting, Work Submittals and approvals, procurement/prefabrication, construction, commissioning, FF&E and Owner acceptance
4	Sub-phase or Component	Summarizes activities by sub-phase or component, examples include design sub-phases like DDs, permit sets and CDs or construction elements like structure, exterior envelope, MEP rough, finishes
5	Detailed Tasks	Identifies measurable activities within each of the trades or disciplines, provides the basis for detailed monitoring of progress

Table 2.4.2.3.5: WBS Level of Detail

2.4.2.3.6 The Project Schedule shall divide the D&C Work into activities of reasonable duration with appropriate logic ties to show Developer's overall approach to the planning, scheduling, and execution of the D&C Work (the "**Schedule Activities**"). The duration and logical relationships of the Schedule Activities (or summaries at phase level) shall be based on the actual duration and relationships anticipated with tasks linked. The Project Schedule shall not provide for Schedule Activities of less than five (5) days.

2.4.2.3.7 Developer shall use consistent Schedule Activity identification numbers, textual descriptions, and codes in all Project Schedule submittals, in a manner acceptable to the Owner and consistent with Best Management Practice.

2.4.2.3.8 Intentionally deleted.

2.4.2.3.9 No unspecified milestones, constraints, use of Schedule Activity durations, logic ties, and/or float suppression techniques, including preferential sequencing

(including arranging a Critical Path through activities more susceptible to Owner caused delay), special lead/lag logic restraints, zero total or free float constraints, extended activity times or imposing constraints on dates other than as required by these Contract Documents, or resource-leveling techniques, shall be used in the Project Schedule. Each Project Schedule submittal shall clearly and individually define the progression of the D&C Work within the applicable time frame by using separate Schedule Activities. The Critical Path shall be highlighted in red on all schedules to distinguish critical Schedule Activities from other Schedule Activities and Float shown for all Schedule Activities.

2.4.2.3.10 Float shall not be considered as time for the exclusive use of or benefit of either the Owner or Developer but shall be considered as a jointly owned, expiring resource available to the Project and shall not be used to the financial detriment of either Party. Any method utilized to sequester Float calculations will be prohibited, unless approved in advance by the Owner. Any schedule, including the Project Schedule and all updates thereto, showing an early completion date shall show the time between the scheduled completion date and the applicable milestone deadline as "Project Float."

2.4.2.3.11 Intentionally deleted.

2.4.2.3.12 Developer shall develop the WBS with clearly identifiable phases represented in the Project Schedule. The Schedule Activity for each D&C Work element shall indicate the duration, timing, and logical relationship to other D&C Work elements, including to Schedule Activities other than the parent Schedule Activity of the particular D&C Work element. All D&C Work shall be broken down to similar manageable D&C Work elements. For mobilization Schedule Activities or D&C Work elements, Developer shall provide a list of D&C Work items that are included in each Schedule Activity or D&C Work element.

2.4.2.4 Project Schedule Updates

2.4.2.4.1 Developer shall include Project Schedule updates in each Monthly Progress Report until Project Final Acceptance in accordance with the requirements of this Section 2.4.2.4.

2.4.2.4.2 The date for use in calculating a Project Schedule Update shall be the first day of the following month.

2.4.2.4.3 Each Project Schedule Update shall:

- (a) identify the Critical Path;
- (b) accurately reflect updated progress as of the commencement of the updated Project Schedule;
- (c) forecast finish for in-progress Schedule Activities;

- (d) reforecast early dates and late dates for remaining Schedule Activities; and
- (e) indicate the overall physically complete percent of the D&C Work and the number of days until Substantial Completion.

2.4.2.4.4 Changes to the Project Schedule must be made in accordance with the Contract Documents. If any actual dates are changed or corrected, a narrative must be included in the Project Schedule Updates providing explanation of the change.

2.4.2.4.5 The monthly Project Schedule Update(s) shall include additional, separate, filtered lists of Project activities and D&C Work elements included in the Project Schedule to create the following reports:

- (a) coordinating with and accomplishing D&C Work associated with Utilities;
- (b) bar chart schedule sorted by element or phase of the D&C Work indicating the percent complete and remaining days for all activities as of date of the update;
- (c) graphical report, which compares Developer's progress to planned progress by Facility and major item/WBS;
- (d) design document submittals for the forthcoming period;
- (e) tabular report listing all activities with ten (10) days or less float;
- (f) sixty-day (60) look ahead report on all the Owner and Governmental Approvals required;
- (g) ninety-day (90) look ahead bar chart schedule sorted by WBS and activity early start dates; and
- (h) critical items graphical report for each Critical Path sorted by activity early start date.

2.4.2.4.6 The Owner will review the monthly Project Schedule Update(s) for consistency with Developer's WBS and the Project Schedule and for conformance with the Contract Documents. The Owner will notify Developer of corrections required within the time period set forth in Section 3.4.8 (Time Periods) of the Agreement. Developer shall correct any deficiencies noted by Owner and resubmit its monthly Project Schedule Update(s).

2.4.2.4.7 The Owner will use the Project Schedule Updates to manage its activities in order to be responsive to the Project Schedule and to monitor Developer's performance in accomplishing the D&C Work.

2.4.2.4.8 Developer shall submit the Project Schedule Update electronically in its native format. Software settings shall not be changed or modified, for any Project Schedule submissions, without prior Owner approval.

2.4.2.5 As-Built Schedule

At Final Acceptance, Developer shall submit the final Project Schedule Update identified as the **“As-Built Schedule”**. The As-Built Schedule shall reflect the manner in which the D&C Work up to Project Final Acceptance was actually performed (including start and completion dates, Schedule Activities, actual durations, sequences and logic).

2.4.2.6 Recovery Schedule

If the D&C Work is delayed on any Critical Path item for a period which exceeds the greater of either (1) thirty (30) days in the aggregate or (2) that number of days in the aggregate equal to 5% of the days remaining until Final Acceptance, the next Project Schedule Update shall include a recovery schedule demonstrating the proposed plan to put the Project back on schedule.

2.4.3 Project Office

2.4.3.1 Colocation During Performance of Design Work

During the performance of the Design Work, Developer shall ensure that Developer’s staff required to support the Work Submittal review procedures as set forth in Section 2.6 (Work Submittal Review Process) of the Technical Requirements are located in a space within the City of Merced, and to the extent practicable, within close proximity to the Owner’s central offices. Developer’s staff to be located within the City of Merced shall include only staff who are essential for interfacing with Owner in connection with the Design Work that cannot be performed remotely. Developer may elect to rent its own space or utilize space provided by Owner. Such design team space shall include, at a minimum, two (2) permanent spaces for colocation of Owner’s staff.

2.4.3.2 Construction Period

2.4.3.2.1 Developer shall provide temporary Project office space within the Project Site for Developer’s personnel and for Owner’s personnel during the Construction Period (the **“Project Office”**).

2.4.3.2.2 Developer shall provide temporary Owner’s office space separate from but in proximity to Developer’s office space.

2.4.3.2.3 The Owner’s office space shall be a four (4) unit wide mobile modular office building with minimum exterior dimensions of 48 feet by 60 feet. Such Owner’s office space shall include the following:

- (a) four (4) private offices;

- (b) open office area with twelve (12) workstations and copy/printer station;
- (c) one (1) large enclosed conference room to accommodate meetings of twelve (12) personnel;
- (d) one (1) small conference room to accommodate meetings of six (6) personnel;
- (e) two (2) accessible restrooms with plumbing to permanent Utilities;
- (f) vinyl floors;
- (g) furnishings for all office spaces and conference rooms;
- (h) plan storage and plan tables in offices;
- (i) high capacity printer/copier;
- (j) insulated construction;
- (k) air conditioning; and
- (l) electrical, telecommunications and internet access with mobile capabilities.

2.4.3.2.4 Developer shall ensure that all common carrier deliveries are delivered to Developer's Project Office space, or some other location under the control of Developer, as appropriate. The Owner will not accept deliveries on behalf of Developer.

2.4.3.3 Operating Period

In the event that Developer considers it necessary to establish a temporary Project office for Developer personnel on the Project Site in connection with Renewal Work or an Owner Change during the Operating Period, then Developer shall coordinate with the Owner for the creation of temporary Owner's office space acceptable to the Owner separate from but in proximity to Developer's office space and in compliance with Sections 2.4.3.2.3 and 2.4.3.2.4.

2.4.3.4 Developer's Operating Period Office Space

In addition to the Areas described in Appendix 1-B (Program Elements) of the Technical Requirements, Developer may elect to include office space for Developer within one of the Buildings for Developer personnel managing the O&M Services. Such Developer office space shall comply with the Contract Documents.

2.4.4 Temporary Barriers and Enclosures

2.4.4.1 Construction Period and Operating Period

The requirements of this Section 2.4.4.1 apply throughout the Construction Period and the Operating Period, as applicable.

2.4.4.2 Temporary facilities or elements necessary for the performance of the Work shall be provided, installed, maintained and removed by Developer, its Contractor, or Developer-Related Entity for those aspects of the Work requiring such temporary facilities or elements, including:

- (a) scaffolding, staging, runways, and similar equipment necessary to complete the Work;
- (b) temporary rigging, rubbish chutes, ladders between floors and similar equipment;
- (c) barricades, lights and similar safety precautions;
- (d) OSHA compliant guardrails at floor openings and building perimeter, as well as toe guards upon placement of concrete slabs; and
- (e) temporary OSHA compliant guardrail system around the storm drain and sanitary sewer excavations.

2.4.4.3 All materials and equipment required to safely accomplish any Work in accordance with the Technical Requirements and the Contract Documents shall be in conformance with requirements of California Occupational Safety and Health Act (Cal/OSHA), Chapter 5 of CalTrans Traffic Manual and applicable Law.

2.4.4.4 All temporary facilities and elements of the Work shall conform to all requirements that pertain to operation, safety and fire hazard as set forth in the Technical Requirements, and applicable Law.

2.4.4.5 Upon completion of an aspect of the Work, Developer shall remove all temporary facilities and elements of the Work.

2.4.5 Campus Activities

2.4.5.1 Construction Period and Operating Period

The requirements of this Section 2.4.5 (Campus Activities) apply throughout the Construction Period and the Operating Period, as applicable.

2.4.5.2 Special Events

2.4.5.2.1 Prior to the commencement of each Academic Year, the Owner will notify Developer of the dates for Special Events included in subsection (a) of the definition of Special Events. The Owner will notify Developer of Special Events included in subsection (b) of the definition of Special Events as soon as reasonably possible.

2.4.5.2.2 Developer shall not perform Work during Special Events except as follows:

- (a) Developer may perform Construction Work, Renewal Work and Planned Maintenance during Advanced Coordination Days, provided that Developer coordinates with the Owner a minimum of 30 days prior to the Advanced Coordination Days on which Developer wishes to Work and complies with any restrictions on the nature and location of the Work imposed by the Owner;
- (b) Upon commencement of O&M Services at a Facility, in accordance with Section 4.1.4.4.2 (O&M Services During Special Events) of the Technical Requirements; and
- (c) As may be approved by the Owner pursuant to Section 19.2.7.5 of the Agreement.

2.4.5.3 Interruption of Campus Activities

2.4.5.3.1 Developer shall coordinate planned Utility service shutdowns during periods of minimum usage. Developer acknowledges that in some cases this will require Work activities before 8:00 a.m. and after 5:00 p.m. and weekend Work, at no additional cost to the Owner. Developer shall provide advance notice to the Owner in compliance with Section 2.4.7.3 (Utilities Management Services) before any Developer-caused interruptions to Utility service and other Developer-caused interferences with use of existing buildings, surrounding hardscape and roads or Facilities.

2.4.5.3.2 Utility service shutdowns critical to the completion of the D&C Work shall be listed as milestones on the Project Schedule. Developer shall program D&C Work to ensure that Utility service will be restored in the minimum possible time, and shall cooperate with the Owner to minimize the frequency and duration of Utility service shutdowns to accommodate D&C Work.

2.4.6 Staffing and Workforce Training

2.4.6.1 Key Personnel

Developer shall implement and adhere to the Staffing Management Plan in conformance with the requirements of Section 2.7.2.1 (Staffing Management Plan) of the Technical Requirements.

2.4.6.2 Staffing Requirements

2.4.6.2.1 Developer shall submit to the Owner for review and approval a list of a maximum of five (5) Developer personnel that shall have the ability to access areas operated and/or maintained by the Owner without prior further authorization from the Owner, other than the approval of such list. The purpose of such personnel shall be to escort Developer's personnel or Developer's third parties in accordance with Section 2.4.6.2.3. Such submittal shall include all background checks for each individual, in compliance with Section 2.4.6.3 (Developer's Personnel Background Checks during Construction Period) and Section 2.4.6.4 (Developer's Personnel Background Checks during Operating Period). Developer's personnel authorized by Owner in accordance with this Section 2.4.6.2.1 shall comply at all times with Section 2.4.6.2.4 when performing duties within the Work Site or the Existing Campus. The extent of access provided by the Owner to Developer personnel shall be determined by the Owner in its sole discretion.

2.4.6.2.2 Notwithstanding the requirements of Section 2.4.6.2.1, and in the event that there is a need for Developer's personnel not previously authorized by Owner to access areas operated and/or maintained by the Owner within the Facilities or the Existing Campus, Developer shall submit a list of such personnel for review and approval no less than twenty-four (24) hours in advance. The Owner reserves the right to deny such request, or otherwise to assign Owner's personnel to escort such Developer personnel while performing Work within the Owner's spaces.

2.4.6.2.3 In those instances in which additional staff that is not preapproved by Owner is required on an Emergency basis, such additional staff shall be escorted at all times by Developer's personnel previously authorized by Owner in accordance with Section 2.4.6.2.1.

2.4.6.2.4 With the exception of Key Personnel and the Developer's executive or management personnel, all Developer's personnel performing any and all Work within the Work Site shall be easily recognizable to users by the Utilization of identification cards visible at all times, and Developer's O&M Services personnel must also wear uniforms approved by the Owner.

2.4.6.2.5 Developer's employees that work in areas where they may be in regular contact with students and other minors must comply with the reporting requirements of the Child Abuse and Neglect Reporting Act (CANRA).

2.4.6.3 Developer's Personnel Background Checks during Construction Period

With the exception of Key Personnel, and the Developer's executive or management personnel, the following Developer's personnel shall have cleared a background check via LiveScan, in accordance with Section 2.4.6.5 (Performance of Background Checks) and Section 2.4.6.6 (Campus Police Responsibilities):

- (a) all personnel assigned to work at any area within the Existing Campus;
- (b) all personnel with direct access to or responsibility for controlled substances or hazardous materials; and
- (c) in the event the Project Master Plan includes a Utility tunnel, all personnel assigned to work at such Utility tunnel.

Any personnel or temporary workers who have not undergone a background check in accordance with Section 2.4.6.5 shall be authorized by Owner or escorted in accordance with Section 2.4.6.2 (Staffing Requirements).

2.4.6.4 Developer's Personnel Background Checks during Operating Period

With the exception of Key Personnel, and the Developer's executive or management personnel, the following Developer's personnel shall have cleared a background check via LiveScan, in accordance with Section 2.4.6.5 (Performance of Background Checks) and Section 2.4.6.6 (Campus Police Responsibilities):

- (a) any personnel with master key access to any Area, Facility or Building;
- (b) any personnel with direct access to or responsibility for controlled substances or hazardous materials;
- (c) any personnel with responsibility for the operation of commercial vehicles, machinery or toxic systems that could result in accidental death, injury or health problems;
- (d) any personnel that require a professional license, registration, certificate or degree in order to perform the Work to which they are assigned, the absence of which would expose the Owner to legal liability; and
- (e) any personnel with direct access to or responsibility for protected, personal or other sensitive information.

Any Developer personnel that have not undergone a background check in accordance with Section 2.4.6.5 shall be authorized by Owner or escorted in accordance with Section 2.4.6.2 (Staffing Requirements).

2.4.6.5 Performance of Background Checks

Developer shall be responsible for the performance of all background checks for Developer's personnel via Live Scan in accordance with the following requirements:

- (a) the criminal background check will seek only felony, felony reduced to misdemeanor, misdemeanor convictions and verification of identity;
- (b) an individual subject to a background check shall not be required to disclose, nor shall any Developer background check investigate, an arrest, detention or report of abuse that did not result in a conviction as part of a background check unless such information is permitted or required by law;
- (c) a background check will include information regarding an individual from their eighteenth (18th) birthday to present. The only exception shall be for employees who have contact with children under eighteen (18) or dependent adults or who have direct responsibility for care, safety or security of people; and
- (d) only specially designated hiring authorities within Developer's organization may have access to and review criminal offender histories.

2.4.6.6 Campus Police Responsibilities

The Campus Police will:

- (a) Upon request from Developer, conduct fingerprint-based background checks, via Live Scan, with the Department of Justice/Federal Bureau of Investigation; and
- (b) House and maintain the Live Scan equipment.

2.4.6.7 Workforce Training

2.4.6.7.1 Developer shall provide all training and orientation to its staff as required by all applicable Law and the Technical Requirements, including training for emergency management as set forth in Developer's Emergency Management and Disaster Recovery Plan and with Section 2.7.2.8 (Emergency Management and Disaster Recovery Plan) of the Technical Requirements.

2.4.6.7.2 From time to time, either Party may request that Developer provide training and orientation to Owner's personnel or Developer's personnel. In such case, both Parties shall cooperate within reason to accommodate such request as necessary.

2.4.7 Work Site Requirements

2.4.7.1 Work Hours

2.4.7.1.1 Construction Period

At each Progress meeting during the Construction Period Developer shall provide the Owner with a description of the projected hours for the performance of the Construction Work. In the event that additional hours are required to complete the Work in accordance with the Project Schedule, Developer shall notify the Owner of such additional hours. In any case, Developer shall observe the requirements of Section 2.4.5.2.2 of the Technical Requirements in the performance of the Work.

2.4.7.1.2 O&M Services

Developer shall comply with the restrictions set forth in Section 4.1.4 (O&M Interface Obligations) of the Technical Requirements when performing O&M Services.

2.4.7.2 Site Restrictions

2.4.7.2.1 Construction Period

During the Construction Period, Developer's use of the Work Site is restricted as follows:

- (a) Passive Open Areas and Active Open Areas:
 - (i) Developer shall not use Passive Open Areas and Active Open Areas except in accordance with Section 3.4.2 (Utilization or Alteration of Passive and Active Open Spaces) of the Technical Requirements.
 - (ii) Developer shall ensure that no run-off enters Passive Open Areas or Active Open Areas, except as otherwise indicated in the Technical Requirements.
 - (iii) Developer shall ensure that no Project Waste (whether solid or liquid) of any type enters Passive Open Areas or Active Open Areas.
- (b) Merced Irrigation District:
 - (i) Developer shall not permit any personnel or construction vehicle to approach within fifty (50) feet of the Fairfield Canal and the penstock between Le Grand and Fairfield Canals, except with the prior written approval of Owner's Authorized Representative.

- (ii) Developer shall ensure that no run-off enters the Fairfield Canal or the penstock between Le Grand and Fairfield Canals.
 - (iii) Developer shall ensure that no Project Waste (whether solid or liquid) of any type enters the Fairfield Canal or the penstock between Le Grand and Fairfield Canals.
 - (iv) Developer shall ensure that all storage areas are within the Project Site and the Ancillary Site.
- (c) Transportation Buffer
- (i) Developer shall not use the Transportation Buffer identified in the Project Site Map at Appendix 4-A of the Agreement except for roadways and pedestrian and bicycle pathways designed and constructed in accordance with Section 3.4.14 (Project Site Circulation).

2.4.7.2.2 Operating Period

During the Operating Period, Developer's use of the Project Site must comply with the restrictions set forth in Sections 2.4.7.2.1(a) and 2.4.7.2.1(b), and Developer shall ensure that all storage areas are within the Facilities.

2.4.7.3 Utilities Management Services

2.4.7.3.1 This Section 2.4.7.3 applies during both the Construction Period and the Operating Period.

2.4.7.3.2 Developer shall:

- (a) Coordinate with both the Owner and the applicable Utility Owner in respect of any Utility related work required to be performed within the Work Site, and in connection with any Work that will require shutdown of any Utility services to the Existing Campus or to a Facility;
- (b) Notify the Owner and the DCFM at least ninety (90) days prior to Large Utility Shutdowns and at least thirty (30) days prior to Minor Utility Shutdowns;
- (c) In the event a Minor Utility Shutdown or a Large Utility Shutdown is required to address an issue related to Availability of an Area or to life safety, Section 2.4.7.3.2(b) shall not apply and Developer shall provide notification to the Owner and the DCFM as soon as practicable;

- (d) Notify the Owner and the DCFM at least thirty (30) days prior to Utility related Work to be performed within the Existing Campus, including Central Plant Expansion Work to be performed within the Central Plant Expansion Site. Developer shall include in the notice a description of the nature of, and proposed schedule for, the Work and the specific location and boundaries of the construction activity area within the Central Plant Expansion Site required for the Work;
- (e) Obtain approval from the Owner to make tie-ins to Utilities on the Existing Campus;
- (f) Comply with applicable Work Site requirements set forth in Section 2.4.7 (Work Site Requirements) of the Technical Requirements when performing Work on the Existing Campus; and
- (g) Check for and avoid all underground Utilities when performing Work. Developer shall coordinate Utility location with Owner and also follow "USA North 811" program.

2.4.7.4 Roads

2.4.7.4.1 Construction Period

During the Construction Period, Developer shall:

- (a) construct an access to the Ancillary Site at the southernmost boundary of the Ancillary Site along Lake Road, and obtain all Governmental Approvals or other approvals as required for such construction access;
- (b) access the Project Site and the Ancillary Site only from the access created at southernmost boundary of the Ancillary Site along Lake Road; access the Borrow Site only from the Project Site or from Ranchers Road;
- (c) not use any roadway within the Existing Campus for vehicular traffic or mobilization of construction vehicles, equipment and material during the Construction Period without prior approval of the Owner's Authorized Representative. Scholars Lane may be utilized as an evacuation route;
- (d) where access to the Existing Campus is required to perform Construction Work, including any Central Plant Expansion Work, Developer may use Ranchers Road and Ansel Adams Road on a limited basis and subject to Owner's prior approval. Developer shall submit a request to the Owner at least twenty-eight (28)

Business Days in advance that describes in detail the reason, the proposed time for and physical boundaries of the Work and the construction activities to be supported by such access;

- (e) use only those roads indicated in Appendix 10 (Construction Route) of the Technical Requirements for mobilization of construction vehicles, equipment and material during the Construction Period;
- (f) within the Work Site, use only existing or planned construction roads for construction access;
- (g) take all necessary precautions to ensure the safety of Users at all times, including flaggers, temporary roadway signs and barricades for any construction access into the Work Site or the Existing Campus;
- (h) obtain prior written approval from the Owner's Authorized Representative to block streets or parking areas at any time;
- (i) in accordance with Section 2.4.12 (Waste Management), clear all roads (including Lake Road), parking areas and sidewalks affected by the Work, including timely removal of dust, dirt, or any other Project Waste so that roads and sidewalks are maintained in a safe and usable condition; and
- (j) construct and maintain all temporary access roads and laydown areas within the Work Site and during the performance of the Construction Work. All temporary access roads shall comply with all applicable Law, regulations and permit requirements, and shall be completely removed at Substantial Completion, except as otherwise set forth in Section 3.10 (Ancillary Site Condition Project Final Acceptance) of the Technical Requirements.

2.4.7.4.2 Operating Period

In the event of an Owner Change during the Operating Period, or Renewal Work, in either case requiring significant construction related traffic, Developer shall minimize its use of existing roads within the Project Site and comply with Section 2.4.7.4.1 (Construction Period).

2.4.7.5 Construction Period and Operating Period – Developer Parking

2.4.7.5.1 Throughout the Construction Period, Developer and Developer-Related Entity vehicles, including personnel POVs, shall be parked within the Project Site or the Ancillary Site. Except as provided in Section 2.4.7.5.2, under no circumstances shall such vehicles shall be permitted to park on the Existing Campus or within any active Existing Parking Lot while in use by Users.

2.4.7.5.2 In the event that Construction Work is required on the Existing Campus, Developer shall notify the Owner of Developer's parking requirements at least thirty (30) days in advance. Developer and Developer-Related Entity vehicles, including personnel POVs, that need to access and park on the Existing Campus in connection with Work on the Existing Campus shall be parked in those areas specifically approved by the Owner in response to Developer's notice.

2.4.7.5.3 Throughout the Operating Period, Developer and Developer-Related Entity vehicles, including personnel POVs, may park on UC Merced property and will be subject to the Owner's parking fees and policies, as amended from time to time. Contact Transportation and Parking Services at (209) 228-4548. A valid permit must be displayed at all times in Developer and Developer-Related Entity vehicles.

2.4.7.6 Traffic Control

2.4.7.6.1 Construction Period and Operating Period

Throughout the Construction Period and the Operating Period, Developer shall:

- (a) perform the Work in a manner that minimizes disruption to traffic;
- (b) maintain at all times access, including pedestrian and bicycle access for Users, vehicular access and all access required for the operation of the Existing Campus, to operating facilities on the Existing Campus and to Facilities on the Project Site that have achieved Occupancy Readiness;
- (c) furnish at Developer's expense all barricades, lights, and other devices and means necessary, including staff utilized for flagging and traffic control during the performance of the Construction Work, to control traffic and shall maintain these devices at all times to protect the public and/or the Project;
- (d) when performing Work on or adjacent to Bellevue Road or Lake Road, install and maintain such devices as are necessary to provide safe passage for the traveling public and to safeguard workers;
- (e) before Work that impacts traffic and roadways begins:
 - (i) provide to the Owner's Authorized Representative for review and comment a schedule of activities that will impact traffic, any planned closing of streets and traffic control plans for handling traffic;
 - (ii) obtain from Governmental Entities having jurisdiction over affected roadways and highway, approval of traffic control

plans for handling traffic in accordance with the California MUTCD Part 6; and

- (iii) provide a minimum of twenty-eight (28) days' notice to the Owner's Authorized Representative before closing any street or access.

2.4.7.7 No Developer Notices or Signs

Throughout the Construction Period and the Operating Period, Developer, its Contractor, or any Developer-Related Entity shall not place any signs, advertisements, notices, or graphic materials anywhere on the Work Site or the Existing Campus, on or within the Facilities or any Element thereof, or on construction fencing or other temporary facilities that have not been approved in writing in advance by Owner's Authorized Representative.

2.4.7.8 Surrounding Site Condition Survey – Construction Period

Prior to commencing the Construction Work, Developer's Authorized Representative and the Owner's Authorized Representative shall tour the Work Site together to examine and record damage to buildings, campus streets and city streets, bicycle paths, sidewalks, and all other improvements on the Existing Campus and adjacent to the Work Site. This record shall serve as a basis for determination of subsequent damage to the Existing Campus due to Developer's operations and shall be signed by Developer's Authorized Representative and the Owner's Authorized Representative. Any cracks, sags, or damage to buildings and improvements on the Existing Campus adjacent to the Work Site not noted in the original survey, but subsequently discovered, shall be reported to the Owner's Authorized Representative.

2.4.7.9 Fencing and Security - Construction Period

During the Construction Period, Developer:

- (a) shall, prior to commencement of Construction Work in any area of the Project Site, install 8-foot high chain link site security fencing and gates around areas where construction activities will take place within the Project Site. Fencing shall include black shade screen to shield construction activities from view. Developer shall maintain fencing around active construction areas within the Project Site and shall remove fencing only with Owner's prior approval;
- (b) shall, prior to commencement of Construction Work anywhere on the Project Site and prior to use of the Ancillary Site, install and maintain a fence in accordance with the requirements set forth in Section 3.4.22 (Cattle Fence) of the Technical Requirements;

- (c) shall be responsible for locking the Work Site (except the Central Plant) and all storage areas during non-working hours. Owner shall have no responsibility for missing or stolen equipment, tools, materials or any other items within the Work Site;
- (d) may, at its own expense, employ a third party to provide security and access control at the Work Site (except the Central Plant) during working or non-working hours. In the event Developer employs a third party to provide certain security and access services, Developer shall:
 - (i) notify the Owner that Developer has engaged a third party to provide security and access control, including identification of the third party and a description of the services that such third party will provide;
 - (ii) provide to the Campus Police for review and approval the names of all security personnel, together with background checks and any other information required by Campus Police;
 - (iv) ensure that security personnel adhere at all times to the University of California Implementation Guidelines for The California Gun Free School Zone Act of 1995, as amended from time to time; and
 - (v) provide the Owner's Authorized Representative and other Owner personnel with access to the Work Site as requested.

2.4.7.10 Tree and Plant Protection

2.4.7.10.1 Construction Period

Developer shall provide and maintain temporary fencing around Protected Trees and shall perform all work necessary to protect and maintain the Protected Trees in healthy growing condition during the Construction Period.

2.4.7.10.2 Operating Period

In performing Work adjacent to trees, shrubs and turf including Protected Trees and Open Space/Landscaping Improvements, Developer shall perform all work necessary to protect and maintain such trees, shrubs and turf in healthy growing condition.

2.4.7.10.3 Standards

Developer shall perform its obligations under this Section 2.4.7.10 (Tree and Plant Protection) in accordance with: Cabling, Bracing and Guying Standards for Shade

Trees, latest revision, as published by the National Arborist Association, 174 RT 101, Bedford, New Hampshire 03102.

2.4.7.11 Decorum

The following requirements apply throughout the Construction Period and the Operating Period:

- (a) smoking and the use of tobacco products are prohibited on the Owner's property, including the Work Site, the Facilities and the Existing Campus;
- (b) firearms are prohibited on the Owner's property, including the Work Site, the Facilities and the Existing Campus;
- (c) alcoholic beverages are prohibited on the Owner's property, including the Work Site, the Facilities and Existing Campus, unless written approval has been obtained from the Owner's Authorized Representative. To obtain such written approval, Developer's Authorized Representative shall submit the request in writing, specifying the activities and reasons for such request. The Owner may deny such requests;
- (d) pets are not allowed at the Work Site, the Facilities, or the Existing Campus; and
- (e) Developer shall ensure that the conduct of its employees, as well as the employees of all Developer-Related Entities, is appropriate and shall prevent interaction initiated by such employees with University of California Merced students, staff, or other individuals (except those associated with the Project), on or adjacent to the Work Site, the Facilities and Existing Campus. Without limitation, unwanted interaction by the employees of Developer and Developer-Related Entities includes whistling at, motioning toward, or initiating conversations with passersby. In the event that any such employee initiates such unwanted interaction, or utilizes profanity, Developer shall, either upon request of the Owner or on Developer's own initiative, replace that employee with another of equivalent technical skill, at no additional cost to the Owner.

2.4.7.12 Existing Infrastructure

2.4.7.12.1 Construction Period

2.4.7.12.1.1 Developer shall coordinate with the Owner on any Construction Work required to be performed on the Existing Infrastructure, including the Central Plant Expansion Work.

2.4.7.12.1.2 Developer shall notify the Owner at least thirty (30) days in advance of any Construction Work required to be performed on the Existing Infrastructure, including the Central Plant Expansion Work.

2.4.7.12.1.3 During the Construction Period, Developer shall protect all Existing Infrastructure. Where the Existing Infrastructure is within the Project Site and will be demolished as part of the Construction Work, Developer shall protect and maintain access to such areas until the commencement of Construction Work in such areas, as set forth in Developer's Project Schedule, at which time Developer shall fence and restrict access to the general public. Any demolition of Existing Infrastructure shall not affect the utilization of other Existing Infrastructure to remain in place. In the event that Existing Infrastructure to remain in place is affected by any demolition, Developer shall provide all safety measures required for Users to access such Existing Infrastructure to remain in place.

2.4.7.12.1.4 Existing Infrastructure shall be kept in service until Construction Work is required in the area. Developer's Authorized Representative shall coordinate with the Owner's Authorized Representative regarding Utility shutdowns (with such coordination to occur at least ninety (90) days prior to a Large Utility Shutdown and thirty (30) days prior to a Minor Utility Shutdown), and shall submit to the Owner's Authorized Representative all required information, including applicable Plans, to maintain service, as required, to Existing Infrastructure.

2.4.7.12.1.5 In the event of damage to Existing Infrastructure that may cause a hazard to the Users of Existing Infrastructure or the general public, Developer shall immediately notify the Owner, as well as all required Governmental Entities, of such damage, and proceed in accordance with all applicable Law and Developer's Emergency Management and Disaster Recovery Plan.

2.4.7.12.2 Operating Period

Developer shall comply with Section 2.4.7.12.1 (Construction Period) of the Technical Requirements during the Operating Period in respect of both Existing Infrastructure and Facilities.

2.4.7.13 Land Surveying Requirements

The following requirements apply throughout the Construction Period and the Operating Period. Developer shall:

- (a) locate and protect control points prior to the commencement of the Construction Work;
- (b) protect all permanent reference points throughout the Term;
- (c) not change reference points without prior approval of the Owner;

- (d) report the loss or destruction of any reference point, or the need to relocate a reference point in connection with the performance of the Work, to the Owner's Authorized Representative; and
- (e) repair or replace any reference point that is lost, destroyed, or requires relocation in connection with the performance of the Work.

2.4.7.14 Work Site Cleanup and Salvage

2.4.7.14.1 Construction Period and Operating Period

The following requirements apply throughout the Construction Period and the Operating Period:

- (a) Developer shall keep the Work Site and the Facilities free of Project Waste, to the extent feasible. Project Waste shall be disposed of in accordance with Section 2.4.12 (Waste Management) of the Technical Requirements;
- (b) the Owner shall have first right of refusal for all material and equipment removed as part of the performance of the Work. All material and/or equipment refused by the Owner shall be the property of Developer and shall be removed and disposed of in accordance with the Contract Documents and applicable Law. All materials and equipment accepted by the Owner in accordance with this Section shall be included in the determination of Project Waste diverted from landfills for purposes stated in Section 2.4.12.1.2(a) of the Technical Requirements; and
- (c) no demolition within the Owner-Provided Work Site or any Facility shall commence without the prior written approval from the Owner's Authorized Representative. Developer shall request such approval fifteen (15) Business Days prior to demolition activities commencement, except as otherwise indicated in the Technical Requirements and Contract Documents.

2.4.7.15 Merced Municipal Code

Developer shall comply with the limitations of Chapters 15.24 and 15.29 of the Merced Municipal Code relating to sewer discharges, to the extent applicable to the performance of the Construction Work.

2.4.8 Fire Watch Procedures

The requirements of this Section 2.4.8 (Fire Watch Procedures) apply throughout the Construction Period and the Operating Period.

- (a) Developer shall notify the DCFM prior to impairment of any Fire Protection and Life Safety System, regardless of whether the impairment occurs on the Project Site or the Existing Campus;
- (b) Developer shall designate dedicated personnel during the implementation of a fire watch procedure. Such Developer personnel shall be dedicated to fire watch and have no other additional duties or responsibilities for the duration of such fire watch, and shall:
 - (i) Be trained in the use of a fire extinguisher and know the locations of all fire extinguishers in their assigned fire watch area;
 - (ii) Be equipped with an appropriate means of communication to report fires or other unsafe conditions to the appropriate entities;
 - (iii) Physically walk the entire fire watch area continually while a fire watch is in progress. All accessible rooms and spaces shall be viewed while physically walking the fire watch area;
 - (iv) Immediately report fires, smoke, smell of smoke, activation of fire sprinklers or fire alarms to the appropriate entities, and in accordance with Developer's Health and Safety Plan;
 - (v) Complete a fire watch log, to be developed by Developer, every thirty (30) minutes, logging the time, location and initials; and
 - (vi) Turn in the fire watch log to Developer's assigned Health and Safety Manager, and in accordance with Developer's Health and Safety Plan.

2.4.9 Product Requirements

2.4.9.1 Materials and Equipment

2.4.9.1.1 All material and equipment utilized and incorporated into the Work shall be:

- (a) new;
- (b) in a condition acceptable to the Owner;
- (c) suitable for its intended use; and
- (d) clean, dry and undamaged.

2.4.10 Data Management and Document Control

Developer shall develop and implement data management and document control procedures and a Project Management Control System in accordance with Section 2.4.10.1 (Project Management Controls System) to ensure the secure storage and transfer of data with the Owner during the Term. The data management and document control procedures to be employed by Developer throughout the Term shall be described in detail in Developer's Data Management and Document Control Plan (DMDCP), in accordance with Section 2.7.2.4 (Data Management and Document Control Plan) of the Technical Requirements.

2.4.10.1 Project Management Controls System

2.4.10.1.1 Developer shall establish and maintain an electronic project management controls system (PMCS) to store, catalog and maintain all Project Records during the Term. The PMCS shall be electronically searchable and legible. Developer shall provide the Owner with read-only and download access to the PMCS and shall train Owner's personnel in the operation of the PMCS. Developer shall obtain all necessary software and licenses for the implementation of the PMCS.

2.4.10.1.2 Before implementing the PMCS, Developer shall submit to the Owner for review in accordance with Section 2.6 (Work Submittals Review Requirements), the selected software platform for the PMCS.

2.4.10.1.3 The PMCS shall:

- (a) use the Owner's plan sheet file naming convention as shown in Appendix 5 (File Naming Convention) of the Technical Requirements;
- (b) use data systems, standards and procedures compatible with those employed by the Owner and implement any new operating practices required as a result of the Owner's amendments to any such systems, standards and procedures;
- (c) provide for the secure access of data by the Owner and transfer of data to the Owner, when required;
- (d) provide for secure document and data storage, such that only authorized Developer personnel and authorized Owner personnel have access and that documents and data are protected from loss, theft, damage, unauthorized access, or malicious use;
- (e) provide integration with Project scheduling software;
- (f) employ appropriate standards and procedures, and train Developer's personnel to operate any Owner data management

system which the Owner may require in connection with the Project;

- (g) provide for electronic storage and electronic transfer of data in native format as may be required by the Owner along with the associated searchable portable document format (PDF) images for uploading by the Owner; and
- (h) provide the Owner with procedures and software for accessing the PMCS.

2.4.10.1.4 To allow for disaster recovery, Developer shall back-up all Project Records on a nightly basis and store such documents in two geographically separate and secure locations on a weekly basis and in a manner consistent with Developer's Emergency Management and Disaster Recovery Plan (EMDRP) and the Contract Documents.

2.4.10.1.5 As part of the PMP, Developer shall establish, implement, populate, manage, maintain, and, as required, update a Data Management and Document Control Plan (DMDCP) in accordance with Section 2.7.2.4 (Data Management and Document Control Plan) of the Technical Requirements.

2.4.11 Coordination with Building Official and Designated Campus Fire Marshal

Throughout the Construction Period, Developer shall coordinate with the Building Official and the Designated Campus Fire Marshal, or with any third-party performing inspections and duties on behalf of the Building Official or the Designated Campus Fire Marshal, to ensure that the Building Official and the Designated Campus Fire Marshal have adequate notice of the progress of the Construction Work and timely access to the Project as needed to perform their respective inspections and duties.

2.4.12 Waste Management

2.4.12.1 General Requirements

2.4.12.1.1 Unless otherwise provided, the requirements of this Section 2.4.12 (Waste Management) apply to all Project Waste during both the Construction Period and the Operating Period.

2.4.12.1.2 Developer shall:

- (a) divert a minimum of 75% of Project Waste from landfill (weight basis);
- (b) extract and recycle materials from Project Waste;
- (c) exercise optimum control of solid wastes;

- (d) prevent environmental pollution and damage;
- (e) furnish labor, containers and transportation for Project Waste and shall remove Project Waste from the Work Site and the Facilities and pay related disposal fees; and
- (f) comply with the requirements of the LEED® v. 3.0 Construction Waste Management Credit within the Work Site and the Facilities.

2.4.12.2 Contaminated Materials

Developer shall:

- (a) not store on the Work Site or at the Facilities any Contaminated Materials that is Project Waste; and
- (b) at completion of Work within an area, remove soil that contains Contaminated Materials from the Work Site and replace that with good soil.

2.4.12.3 Recycling

2.4.12.3.1 Developer shall implement a recycling program that includes separate collection of Project Waste of the following types, at a minimum and as applicable to the Project:

- (a) food waste;
- (b) asphalt;
- (c) concrete and concrete blocks;
- (d) brick and masonry materials;
- (e) untreated lumber;
- (f) clean dimensional wood and palette wood;
- (g) plywood, oriented strand board, and medium density fiberboard;
- (h) paper material;
- (i) cardboard and paper packaging materials;
- (j) plastics;
- (k) rigid foam;
- (l) insulation;

- (m) ferrous metal;
- (n) non-ferrous metals (e.g. copper, aluminum, etc.);
- (o) glass;
- (p) gypsum board (unpainted);
- (q) carpet and pad;
- (r) beverage containers;
- (s) plumbing fixtures;
- (t) electrical fixtures and wires; and
- (u) others as indicated in the construction waste management plan required by LEED v. 3.0 Green Building Design and Construction reference guide 2009 edition.

2.4.12.3.2 If Developer chooses to have a commingled Project Waste container, such container shall have a documented recycling rate of 70% or better by means of offsite sorting and diversion.

2.4.12.3.3 Intentionally deleted.

2.4.12.3.4 The recycling container and the waste container shall be clearly marked as such and a list of acceptable or unacceptable waste or materials shall be posted on or next to each recycling container and waste container.

2.4.12.3.5 Developer shall keep the area where the Project Waste recycling and waste containers are located neat and clean.

2.4.12.3.6 Developer shall keep materials to be recycled free of Contaminated Materials and other substances deleterious to the recycling process.

2.4.12.3.7 Developer shall arrange for collection or delivery of Project Waste to appropriate recycling centers or transfer stations.

2.4.12.3.8 Intentionally deleted.

2.4.13 Environmental Requirements

2.4.13.1 Construction Period and Operating Period

Unless otherwise provided, the requirements of this Section 2.4.13 (Environmental Requirements) apply during both the Construction Period and the Operating Period.

2.4.13.2 Biological Resources

2.4.13.2.1 Developer shall, to the extent applicable to the Project and subject to Appendix 23 (Modifications to Project Commitments) to the Agreement, comply with the requirements set forth in the following Owner-Provided Approvals at the Owner-Provided Work Site:

- (a) California Department of Fish and Game Incidental Take Permit No. 2081-2009-010-04 (April 6, 2011), together with Amendment 1 (October 3, 2011) and Amendment 2 (December 17, 2015);
- (b) Final Biological Opinion on the Proposed University of California Merced Campus, Phase 1 and Campus Buildout (Corps # 199900203) and Infrastructure Project (Corps # 200100570) (August 19, 2002); and
- (c) Amendment to Formal Section 7 Consultation on the University of California, Merced Campus and Community North Project (Corps # 199900203,) Merced County, California (April 28, 2009).

2.4.13.2.2 Developer shall implement the following mitigation requirements throughout the Owner-Provided Work Site (except as provided in Section 2.4.13.2.2(g)) to minimize impacts on all status migratory birds and raptors:

- (a) Limit construction to the non-breeding season, or if breeding season work (February 15 – August 15) is required, conduct pre-construction (tree, shrub, and ground) nest surveys to identify and avoid active nests or as an option, remove potential breeding habitats during the non-breeding season.
- (b) If feasible, the Developer shall conduct all construction-related activities including but not limited to tree and shrub removal, other vegetation clearing, grading or other ground disturbing activities during the non-breeding season for all migratory birds and raptors. If construction activities are scheduled to occur during the breeding season, a qualified avian biologist, with knowledge of the species to be surveyed, shall be retained to conduct focused nesting surveys within fifteen (15) days of the start of ground-disturbing or construction activities and within the appropriate habitat.
- (c) Tree, shrub and ground nesting surveys for all migratory birds and raptors shall be conducted before any construction disturbances occur in or near suitable nesting habitat within 500 feet (0.25 mile for Swainson's hawk) of the construction work area between February 15 and August 15.

- (d) If an active nest is located within 500 feet (0.25 mile for Swainson's hawk) of the active work area, the California Department of Fish and Wildlife shall be consulted to determine an appropriate no-disturbance buffer around the nest until the nest is no longer active and the young have fledged. No construction shall be allowed within this exclusion area without consulting with the California Department of Fish and Wildlife. A wildlife biologist shall monitor the nest site during construction at least once (1) per week or a frequency determined by California Department of Fish and Wildlife, to ensure that the nest site is not disturbed and the buffer is maintained.
- (e) A nest tree may only be removed during non-breeding season after the qualified avian biologist has determined that the nests are unoccupied.
- (f) Minimize impacts to burrowing owls:
 - (i) If owls must be moved away from the Owner-Provided Work Site during the nonbreeding season, passive relocation techniques (e.g., installing one-way doors at burrow entrances) shall be used instead of trapping. At least one (1) week will be necessary to complete passive relocation and allow owls to acclimate to alternate burrows.
 - (ii) When destruction of occupied burrows is unavoidable during the nonbreeding season (September 1 to January 31), the Owner shall be notified 30 days in advance.
- (g) The following requirements apply to the Borrow Site only:
 - (i) A qualified biologist shall be retained to conduct preconstruction surveys for active burrows. If no burrowing owls are detected, no further mitigation is required.
 - (ii) Occupied burrows shall not be disturbed during the breeding season of February 1 to August 31 and requires a 250 foot no disturbance buffer.

2.4.13.2.3 Developer shall conduct preconstruction surveys of potential breeding habitat within construction areas of the Borrow Site.

2.4.13.3 Emissions

Developer shall implement the following mitigation measures to reduce impacts of reactive organic gases (ROG) and nitrogen oxides (NOX) emissions from construction equipment exhaust:

- (a) use construction equipment operated by alternative fuel when such equipment is available at commercially reasonable rates in the Central Valley region;
- (b) minimize idling time to a maximum of ten (10) minutes when construction equipment is not in use. In the event that idling time of construction equipment or vehicles when not in use will be longer than ten (10) minutes for specific construction activities, Developer shall submit a request to the Owner's Authorized Representative detailing the specific activity and reason for such longer idling time and obtain written approval from the Owner's Authorized Representative prior to such activity;
- (c) manage operation of heavy-duty equipment to reduce emissions;
- (d) use low-emission on-site stationary equipment;
- (e) when using construction equipment rated greater than fifty (50) horsepower (hp) meet at least Tier 4 emission standards (as identified by the California Environmental Protection Agency, Air Resources Board) unless such engines are not available for a particular piece of equipment;
- (f) if Tier 4 engines are not available for any off-road engine larger than 50 hp, ensure that such engines shall have tailpipe retrofit controls that reduce exhaust emissions of NOX and particulate matter to Tier 4 emission levels. Tier 3 engines may be used only when Developer has provided documentation, including written confirmation from at least two construction equipment rental companies located in the Central Valley, to the Owner's Representative establishing that no Tier 4 equipment or emissions equivalent retrofit equipment is available for a particular equipment type. References in this Section 2.4.13.3(f) to Tier 3 and to Tier 4 engines, equipment and emissions standards are in each case as identified by the California Environmental Protection Agency, Air Resources Board.

2.4.13.4 Noise Mitigation

Prior to initiation of disruptive Work, Developer shall provide a construction noise mitigation program to the Owner for review and comment. In connection with such disruptive Work, Developer shall implement and comply with the construction noise mitigation program stamped "REVIEWED" by Owner. The construction noise mitigation program shall include to the following requirements:

- (a) construction activities within 500 feet of any occupied residences shall be restricted to between the hours of 7:00 AM and 6:00 PM

on weekdays and Saturdays with no construction on Sundays and holidays;

- (b) all noise-producing equipment and vehicles using internal combustion engines shall be equipped where appropriate with exhaust mufflers and air-inlet silencers in good operating condition that meet or exceed original factory specifications;
- (c) mobile or fixed “package” equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment;
- (d) mobile or fixed noise-producing equipment that is regulated for noise output by local, state or federal agency shall comply with such regulation;
- (e) electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, when such equipment is available at commercially reasonable rates in the Central Valley region;
- (f) material stockpiles, mobile equipment staging, construction vehicle parking, and maintenance areas shall be located as far as practicable from noise-sensitive land use;
- (g) stationary noise sources such as generators or pumps shall be located as far as practicable away from noise-sensitive land uses;
- (h) noise-producing signals, including horns, whistles, alarms, and bells, shall be used for safety warning purposes only. No Developer public address loudspeaker, two-way radio, or music systems shall be audible at any adjacent noise-sensitive receptor except for emergency use;
- (i) temporary noise barriers shall be installed where Project activity is unavoidably close to noise-sensitive receptors;
- (j) the noisiest construction operations shall be scheduled to occur together to avoid continuing periods of the greatest annoyance, to the extent doing so would align with Best Management Practice;
- (k) construction vehicle trips shall be routed as far as practical from existing residential uses;
- (l) the loudest construction activities, such as demolition, blasting, and pile driving, shall be scheduled during summer,

Thanksgiving, winter, and spring breaks when fewer people would be disturbed by construction noise, to the extent that doing so would align with Best Management Practice and the Project Schedule; and

- (m) when Campus Activities will be subject to construction noise, Developer shall inform the Owner's Authorized Representative one week prior the start of such Work.

2.4.13.5 Dust Palliation

Developer shall:

- (a) ensure that all construction, demolition, excavation, extraction or other earthmoving activities comply with all applicable Law, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII - Fugitive PM10 Prohibitions;
- (b) ensure that all disturbed areas, including storage piles and off-site and Work Site unpaved roadways, are sprinkled with water or other dust control agents/chemical stabilizers acceptable to SJVAPCD, or are covered with vegetative ground cover, so as to effectively prevent dust emissions, and that additional watering or acceptable dust control agents/chemicals are applied during dry weather or windy days until dust emissions are not visible;
- (c) limit traffic speeds on unpaved roads within the Work Site to 15 mph;
- (d) install sandbags or other erosion control measures to prevent silt runoff to public roadways from areas within the Work Site with a slope greater than 1%;
- (e) ensure that, if an area having 0.5 acres or more of disturbed surface area remains unused for seven or more days, the area complies with stabilized surface area conditions as defined in Rule 8011 of SJVAPCD;
- (f) comply with the record keeping requirements specified in Rule 8011 of SJVAPCD;
- (g) ensure that trucks hauling dirt and Debris are effectively wetted and/or maintain not less than six (6) inches freeboard and/or cover the top of the load to reduce wind-blown dust or spills;
- (h) remove accumulation of Work related dirt, mud, dust or Debris daily from paved approach routes to the Work Site, including Lake Road, parking areas and sidewalks every twenty-four (24) hours when

operations re occurring. The use of dry rotary brushes and blower devices shall not be permitted except where preceded by sufficient wetting to limit visible dust emissions.

2.4.13.6 Archaeological Resources

In the event that evidence of deposits of historical or archaeological interest, including human remains, is found during the performance of the Work, Developer shall cease the Work affecting the find and immediately notify the Owner's Authorized Representative. Developer shall not disturb deposits until written notice from the Owner's Authorized Representative is given to proceed.

2.4.13.6.1 Procedures

- (a) In the event buried cultural resources, including chipped or ground stone, historic debris, building foundations, or non-human bones are inadvertently discovered during ground-disturbing Work within the Work Site, Developer shall stop all Work within that area and within one hundred (100) feet of the find until Developer has retained an Owner approved qualified archaeologist to assess the significance of the find and, if necessary, develop appropriate treatment measures. Owner approval shall not be unreasonably withheld provided that the qualifications of the archaeologist are consistent with the requirements of Owner's regulatory commitments.
- (b) If cultural resources are discovered during the performance of the Construction Work, Developer shall verify that all Work is halted until appropriate treatment measures are implemented in coordination with the U.S. Army Corps of Engineers and the Owner.
- (c) If human remains are encountered, Developer shall stop all Work and notify the Owner's Authorized Representative immediately. The Owner's Authorized Representative will immediately notify the Merced County Coroner. In the event human remains are determined to be Native American, Developer shall comply with all applicable Law relating to the disposition of Native American burials, which falls within the jurisdiction of the California Native American Heritage Commission (Public Resources Code Section 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the Work Site area or any nearby area reasonably suspected to overlie adjacent human remains until the Merced County Coroner has been informed and has determined that no investigation of the cause of death is required. In such instance, Developer shall not commence any Work within such area until directed to do so by the Owner.

2.4.13.7 Paleontological Resources

In the event that evidence of deposits of paleontological interest is found during the performance of the Construction Work, Developer shall cease the Work affecting the find and immediately notify the Owner's Authorized Representative. Such deposits shall not be disturbed until written notice from Owner's Authorized Representative is obtained.

2.4.13.7.1 Procedures

- (a) Prior to commencement of Construction Work, Developer's staff shall be informed by Developer of the potential for encountering significant paleontological resources in accordance with Section 2.4.13.10 (Environmental Workforce Training for Construction Personnel). All Developer's staff shall be informed of the need to stop Work in the vicinity of a potential discovery until a qualified paleontologist has been provided the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find. Developer's staff shall also be informed of the requirements that the unauthorized collection of such resources is prohibited.
- (b) In the event a potentially significant paleontological find is discovered, Developer shall cease all Work in the area of the find until Owner has retained a paleontologist to assess the significance of the find and, if necessary, implement appropriate measures to protect or scientifically remove the find. Collection of fossil resources by other than the Owner's consulting paleontologist is prohibited. Any significant finds that are recovered shall be retained by the Owner.
- (c) An Owner-appointed, qualified paleontologist may be intermittently present to inspect exposures of the Merhten Formation, North Merced Gravels, and Riverbank Formation during construction operations to ensure that paleontological resources are not destroyed by project construction.

2.4.13.8 Work Site Hazards

Developer shall coordinate with the Merced County Division of Environmental Health in the process of identifying and remediating or removing Contaminated Materials, Undesirable Materials, wells or underground storage devices encountered during the performance of the Work. Developer shall document such processes in accordance with Section 2.7.2.4 (Data Management and Document Control Plan) of the Technical Requirements.

2.4.13.9 Vibration

2.4.13.9.1 For construction adjacent to any laboratories or housing on the Existing Campus, or Laboratory Areas forming part of the Facilities, Developer shall apply additional measures including advance notice to the Owner, to ensure that precautions are taken in those facilities to protect ongoing activities from vibration effects. For construction adjacent to Housing Areas forming part of the Facilities, Developer shall provide advance notice to the Owner of construction activities that have vibration effects.

2.4.13.9.2 Developer shall avoid impact pile driving where possible in vibration-sensitive areas, including near laboratories and housing on the Existing Campus, and near Laboratory Areas and Housing Areas forming part of the Facilities. Drilled piles or vibratory pile driving shall be used where geological conditions permit their use. For impact pile driving activities occurring within fifty (50) feet of structures, Developer shall limit ground-borne vibration due to construction activities to 0.50 inches/second, ppv (limit of potential for damage to typical structures) in the vertical direction at sensitive receptors.

2.4.13.10 Environmental Workforce Training for Construction Personnel

Prior to the commencement of Construction Work, all construction personnel shall attend the Workforce Training provided by Developer, as outlined in Section 2.7.2.6 (Environmental Management Plan) of the Technical Requirements. The training shall include, at minimum:

- (a) the identification of and procedures to follow for information regarding archeological and paleontology resources, including that unauthorized collection of archeological and paleontology resources is prohibited.
- (b) Other training as required in the in the following Owner-Provided Approvals:
 - (i) California Department of Fish and Game Incidental Take Permit No. 2081-2009-010-04 (April 6, 2011), together with Amendment 1 (October 3, 2011) and Amendment 2 (December 17, 2015);
 - (ii) Final Biological Opinion on the Proposed University of California Merced Campus, Phase 1 and Campus Buildout (Corps # 199900203) and Infrastructure Project (Corps # 200100570) (August 19, 2002); and
 - (iii) Amendment to Formal Section 7 Consultation on the University of California, Merced Campus and Community North Project (Corps # 199900203,) Merced County, California (April 28, 2009).

2.5 QUALITY MANAGEMENT

2.5.1 Quality Management Plan Requirements

As part of the PMP, and in accordance with this Section 2.5 (Quality Management), Developer shall develop and implement a comprehensive Quality Management Plan (“**QMP**”) to ensure compliance with the Contract Documents and the quality of all aspects of the Project, including during the Construction Period and the Operating Period, using a single Quality Management System (“**QMS**”), which covers all the activities of Developer and Developer-Related Entities. Developer’s QMS shall include quality control procedures to be utilized to verify, check, and review the quality of all Work and quality assurance procedures to confirm that the quality control procedures are being followed.

2.5.1.1 Design and Construction Quality Management Plan

2.5.1.1.1 The QMP shall contain a complete description of the quality policies and objectives that Developer shall implement throughout its organization and in the execution of the Work. The policies shall demonstrate Developer’s senior management’s commitment to implement and continually improve the Quality Management System for the Work.

2.5.1.1.2 The QMP shall describe the quality control procedures to verify, check, and review the quality of all Work and quality assurance procedures to confirm that the quality control procedures are being followed. The QMP shall be a part of the Project Management Plan.

2.5.1.1.3 The QMP shall contain Developer’s QMS, which shall detail procedures for Developer’s QA/QC activities for the Project in accordance with the Contract Documents. Developer’s QMS shall ensure that each Facility achieves the required level of quality throughout the Term and shall incorporate planned and systematic audits. Developer shall conduct all QA/QC and performance audits in accordance with the QMP and the requirements of the Contract Documents. The QMS shall be consistent with ISO 9001 and ISO 14001 standards for quality and environmental management systems.

2.5.1.1.4 Developer shall revise its QMP when:

- (a) its own quality management organization detects a systemic or fundamental Nonconforming Work;
- (b) its own quality management organization detects a systemic issue with the manner the Work is inspected or tested; or
- (c) when the Owner advises Developer of such a problem.

2.5.1.1.5 In any case, Developer shall review the QMP periodically in accordance with Section 2.7.7.2.7 of the Technical Requirements.

2.5.1.2 Quality Management Organization

2.5.1.2.1 Throughout the Term, Developer shall regularly maintain the QMP to contain the current version of the following information related to the quality management organization:

- (a) the organizational chart that identifies all quality management personnel, their roles, authorities and line reporting relationships;
- (b) descriptions of the roles and responsibilities of all quality management personnel and those who have the authority to stop Work;
- (c) identification of testing agencies, including information on each agency's capability to provide the specific services required for the Work, certifications held, equipment and location of laboratories for products produced both on and off the Project Site; and
- (d) resumes for all quality management personnel.

2.5.1.3 Design Quality Management Plan

As a subset of the QMP, Developer shall prepare and submit to the Owner for review and approval a Design Quality Management Plan (DQMP) that describes its policies, procedures, and staffing to manage the quality of the Design Work in accordance with the requirements of this Section 2.5.1.3. The DQMP shall apply to all Design Work to be accomplished during the Construction Period. The DQMP shall describe and include, at a minimum, the requirements set forth in the following subsections.

- (a) Name, contact information and qualifications of the Design Quality Control Manager.
- (b) Organizational structure, including an organizational chart, of the Design Quality Control staff.
- (c) The quality control and quality review procedures for professional services products shall be organized by discipline (such as architectural, structural, civil, utilities). These procedures shall specify measures to ensure that appropriate quality requirements are specified and included in the professional services product and to control deviations from such requirements.
- (d) Specific QA/QC review procedures, including all required forms and checklists, shall be specified for preparing, verifying and checking all professional services products to ensure that they are independently checked and back-checked in accordance with Best Management Practice and the requirements of the Contract Documents.

- (e) The designer and checker shall be clearly identified on the cover page of all Final Design Documents. The Design Documents shall be sealed, signed and dated by the Registered Professional registered in the State of California in responsible charge for that item, element, or phase of the Work.
- (f) Procedures shall be described for coordinating Design Work performed by different individuals or firms working in the same area, in adjacent areas, or on related tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the specifications. This shall also include the coordination of the review, approval, release, distribution and revision of documents involving such parties.
- (g) Procedures shall: (i) ensure that Developer personnel are familiar with all the provisions of the Contract Documents concerning their respective responsibilities; (ii) ensure that Developer provides for the education, training and certification, as appropriate, of personnel performing activities affecting or assessing the quality of the Work to assure that such personnel achieve and maintain reasonable proficiency; (iii) ensure that Developer personnel performing activities affecting or assessing the quality of the Work have adequate experience and training, as appropriate; and (iv) ensure that the Work is performed according to the DQMP, Best Management Practices and the Contract Documents.
- (h) Procedures shall be established for meeting documentation requirements; the filing of design criteria, reports and notes, calculations, plans, specifications, schematics and supporting materials needed during the final design; and the specific responsibilities of personnel to satisfy these requirements. All Design Documents shall be maintained, organized and indexed by Developer and copies made available to the Owner upon request.
- (i) Procedures and schedules shall be established for the Design Quality Control Manager (DQCM) to perform audits of the quality control procedures of the firms involved in the design of the Project under the DQMP; the dissemination of audit results and the addressing of audit findings.

2.5.1.4 Construction Quality Management Plan

Developer's Construction Quality Management Plan (CQMP) shall contain detailed procedures for Developer's quality control and quality assurance activities for the Construction Work. The CQMP shall establish a clear distinction between quality control and quality acceptance activities and persons performing them. The CQMP shall apply to all Construction Work to be accomplished during the Construction Period.

The CQMP shall describe and include, at a minimum, the requirements set forth in the following subsections.

- (a) Methods and procedures that clearly define the distinction/authority/responsibility for the administration of Developer's CQMP.
- (b) A methodology for performing field inspections of Construction Work regularly and periodically at key milestones, hold points, and statutory inspections, in each case preparing a QC report to document the inspection performed.
- (c) The review and approval of all materials and finishes by a Registered Professional employed by the Construction Quality Acceptance Firm (CQAF).
- (d) Methods and procedures to be utilized by Developer to obtain active participation of the work force in quality control operations to achieve a quality Project.
- (e) A construction quality control organization and staffing plan.
 - (i) The construction quality control organization and staffing plan must show the period of time that the quality control staff member will be present on the Work Site and shall include resumes of the Key Personnel as specifically related to the implementation of such CQMP, and the experience/ knowledge/ skill levels of the quality control support staff provided in a matrix format to the Owner.
- (f) CQAF organizational and staffing plans. The period of time that the quality acceptance staff member will be present on the Work Site shall be shown; resumes of key staff members shall be included; and the required minimum knowledge, technical skills, and experience level of the personnel related to the various inspection functions, such as grading, drainage, pile-driving and structures inspections, that will occur during the Construction Work shall be stated. The administrative/clerical support staff for maintenance and management of records/documents pertinent to quality acceptance for the CQMP activities shall be identified.
- (g) Procedures for inspecting, checking, and documenting the Construction Work. Inspection, examinations and/or measurements shall be performed for each operation of the Construction Work to assure quality.

- (h) Procedures to ensure that all activities affecting the quality of the Construction Work are accomplished using appropriate equipment for the task being performed.
- (i) Procedures to ensure that the Construction Work is performed in accordance with the designs, plans, and specifications to which the Owner has provided its concurrence.
- (j) Procedures to ensure that critical elements of the Construction Work are not started or continued without inspection and testing by the quality acceptance personnel on site. Inspection or hold points shall be identified and communicated to the CQAF, Construction Quality Control Manager (CQCM), and the Owner. Procedures to proceed beyond inspection points shall be developed.
- (k) Description of specific procedures to ensure that all Construction Work conforms to the requirements of the Contract Documents, Governmental Approvals and applicable Law, and the Design Documents, as well as that all materials, equipment, elements and finishes of the Construction Work will perform satisfactorily for the purpose intended and are in accordance with the Contract Documents and the Technical Requirements. These procedures shall be consistent with Best Management Practice and shall include the use of mock-ups in accordance with Section 2.5.2.2 (Mock-ups) of the Technical Requirements.
- (l) Documents that specify that all activities undertaken by or on behalf of Developer affecting the quality of the Work shall be prescribed and accomplished by documented instructions, procedures, and appropriate drawings. Such instructions, procedures and drawings shall include quantitative and qualitative criteria to be used to determine compliance.
- (m) Measures to ensure that purchased materials comply with Section 2.4.9 (Product Requirements) of the Technical Requirements; equipment and services conform to the Contract Documents, Governmental Approvals, applicable Law, Manuals and Guidelines and the Design Documents. These measures shall be consistent with Best Management Practice and shall include examination of products upon delivery and use of mock-ups in accordance with Section 2.5.2.2 (Mock-ups) of the Technical Requirements.
- (n) Procedures for identification and control of materials, equipment, and Project elements and finishes. These procedures shall be consistent with Best Management Practice.

- (o) Procedures designed to avoid using or installing materials, equipment or elements of the Construction Work that do not conform to the Technical Requirements or the Contract Documents, the Governmental Approvals, applicable Law or the Design Documents. These procedures shall include procedures for the Owner to review Nonconforming Work and procedures to prevent reoccurrence of Nonconforming Work.
- (p) Procedures for resolving discrepancies and/or questions in the plans and specifications so that all changes are reviewed by the Owner, documented and approved by Developer's design engineers.
- (q) Intentionally deleted.
- (r) A program for inspection for each element of the Construction Work to assure quality.
- (s) A program for coordination of all inspection and testing with the inspections and tests of Governmental Entities and Utility Owners.
- (t) A program to ensure performance of all testing required to demonstrate that all Facility Systems will perform satisfactorily for the purpose intended and meet the standards specified in the Technical Requirements and the Contract Documents. It shall specify written test procedures which include provision for ensuring that all prerequisites for the given test have been met and that adequate test instrumentation is available and used. The CQMP shall require test results be documented and evaluated to ensure that test requirements have been satisfied. The CQMP shall also demonstrate how the CQAF will track its testing to ensure compliance with the Contract Documents.
- (u) Procedures for reviewing and approving acceptance test results and categorizing test results in a manner acceptable to the Owner.
- (v) Detailed descriptions of the inspection and test plans, including the timing, quantities represented and frequency of testing, that Developer will use to meet QA/QC requirements of the Construction Work.
- (w) Measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified and adjusted at specified periods to maintain accuracy within industry standards.

- (x) Procedures to control the handling, storage, shipping, cleaning and preservation of materials and equipment to prevent damage or deterioration.
- (y) Procedures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations and other Nonconforming Work are promptly identified and corrected. The procedures shall ensure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition and the corrective action taken shall be documented and reported to the Owner in writing and to appropriate levels of Developer's management to ensure corrective action is promptly taken.
- (z) A comprehensive system of planned and periodic audits of Developer's CQMP to determine adherence to and the effectiveness of the CQMP. CQAF personnel shall perform the audits in accordance with the written procedures or checklists. Audit results shall be documented, reviewed, and acted upon by Developer. Follow-up action, including re-audit of deficient areas following corrective action, shall be taken.
- (aa) Measures to control the receipt and issuance of controlled documents, such as instructions, procedures, training manuals and drawings, including changes thereto, which prescribe activities affecting quality. These measures shall ensure that approved documents, including authorized changes thereto, are reviewed for adequacy and approved for release by authorized personnel of Developer and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless the Owner consents, in writing, to another responsible organization.
- (bb) The requirements and methods for controlling documents. Developer's document control system shall be compatible with the Owner's and in compliance with Section 2.4.10 (Data Management and Document Control) of the Technical Requirements.
- (cc) Procedures and personnel to be used to assure that specified instrumentation is installed and monitored in accordance with applicable specifications.

- (dd) The form and distribution of certificates of compliance.
- (ee) Procedures for quality acceptance in the CQMP with respect to checking and verifying the accuracy and adequacy of construction stakes, lines, and grades established by Developer.
- (ff) In order to inspect the Construction Work and to perform independent quality assurance inspection, verification, sampling, testing and audit for compliance with the Contract Documents, Developer will provide to the Owner, or its authorized representative, unrestricted entry at all times to such parts of the Project and facilities that concern the manufacture, fabrication (onsite and offsite), production, or testing. Performance by the Owner of such quality assurance, inspection, verification, sampling, testing and audit does not relieve Developer of any of its responsibility under the Contract Documents and in particular its responsibility for the quality of the Construction Work.
- (gg) Procedures for achieving Occupancy Readiness, Substantial Completion and Final Acceptance for each Facility and the Project, including procedures to certify to the Owner that all Construction Work meets all acceptance criteria.

2.5.1.5 O&M Quality Management Plan

2.5.1.5.1 The O&M QMP shall, at a minimum:

- (a) clearly outline the roles, rights, and responsibilities of the Owner, and Developer, as applicable, and consistent with the requirements of Section 4.1.1 (O&M Services), Section 4.1.2 (Additional O&M Services), Section 4.1.3 (Excluded O&M Services), and Section 4.1.4 (O&M Interface Obligations) of the Technical Requirements;
- (b) include procedures to report, the status of, and the closeout of, all Nonconforming Work and Noncompliances throughout the Term. The QMP shall also include procedures for investigations and surveys undertaken by Developer as part of the monitoring process;
- (c) encompass all Work performed by Developer, Developer-Related Entities, Contractors and suppliers of all tiers;
- (d) assign an overall Quality Manager that shall supervise and coordinate all the Quality Management activities and procedures set forth in the QMP;

- (e) provide guidelines for development of a design quality management for any Design Work to be accomplished during Operating Period pursuant to an Owner Change; and
- (f) provide guidelines for development of a construction quality management plan for any Construction Work to be accomplished during the Operating Period pursuant to an Owner Change.

2.5.2 Implementation of the Quality Management Systems

2.5.2.1 General Requirements

- (a) The requirements set forth in this Section 2.5.2 (Implementation of the Quality Management Systems) shall apply to the performance of the Design Work and Construction Work during the Construction Period and the performance of any Renewal Work or construction Work, as the case may be, during the Operating Period, without exception.
- (b) Developer shall be responsible for the quality of the Design Work and Construction Work.
- (c) Developer's QMS shall include procedures for Developer to report and monitor the status of, and close out of, all Nonconforming Work and Noncompliances throughout the Construction Period. Developer's QMS shall include procedures for investigations and surveys undertaken by Developer.
- (d) Developer's QMS shall be consistent with the requirements of ISO 9001, and shall include a Corrective and Preventative Action Process (CPAP). Developer may elect to obtain formal ISO 9001 certification, but is not required to do so. Developer's QMS shall include processes to reflect environmental management that is compliant with ISO 14001 requirements.
- (e) There shall be only one QMS for the Project covering Developer and Developer-Related Entities. Individual quality systems for different Developer-Related Entities shall not be permitted.
- (f) Developer shall:
 - (i) assign a manager for Quality Assurance (the "**Quality Assurance Manager**"). The Quality Assurance Manager shall have no responsibilities in the production of the Work and shall be assigned to perform inspection, testing or monitoring of the Design Work and Construction Work, as applicable. The Quality Assurance Manager shall not

perform or directly supervise the Work being inspected, tested or monitored; and

- (ii) assign Quality Assurance staff reporting to the Quality Assurance Manager. The Quality Assurance staff shall have no responsibilities in the production of the Work and shall be assigned to perform inspection, testing or monitoring of the Design Work and Construction Work, as applicable. The Quality Assurance staff shall not be those personnel performing or directly supervising the Work being inspected tested or monitored.
- (g) Developer shall assign a manager for the Quality Control of the Design Work and a manager for the Quality Control of the Construction Work (respectively, the “**Design Quality Control Manager**” and the “**Construction Quality Control Manager**”). Both the Design Quality Control Manager and the Construction Quality Control Manager shall be responsible for developing Quality Control processes for the performance of the Design Work and Construction Work, respectively, and ensuring such processes are implemented and followed during the Construction Period.
- (h) Intentionally deleted.
- (i) The Quality Manager shall prepare on a quarterly basis a quality report (each a “**Quarterly Quality Report**”) to be submitted quarterly with the first Monthly Progress Report to fall due following the end of each quarter. The Quarterly Quality Reports shall include the quality reviews, inspections, and tests performed; results of such reviews, inspections, and tests performed; and occurrences and resolution of Nonconforming Work discoveries.
- (j) Developer’s Quality Manager, Quality Assurance Manager, and Quality Control Manager(s) shall have the authority to stop Work for quality-related issues.

2.5.2.2 Mock-ups

- (a) Developer shall utilize mock-ups as part of Developer’s QMP to verify quality of materials and quality of workmanship and integration with adjacent or related aspects of the Work.
- (b) Developer shall construct mock-ups of Areas, layouts and finishes of common Building components and systems, as identified by Developer in consultation with the Owner, including at a minimum mock-ups of the elements listed below in this Section 2.5.2.2(b), which shall be included in the QMP, together with any additional mock-ups reasonably requested by the Owner:

- (i) Typical undergraduate student housing bedroom;
 - (ii) Typical wet lab and associated support space;
 - (iii) Building facade material interface and coordination;
 - (iv) Typical site paving by type;
 - (v) Typical signage by type;
 - (vi) First in place for each ceiling type; and
 - (vii) First in place for each flooring type.
- (c) Developer shall provide each mock-up to the Owner for review no less than fourteen (14) days prior to full field installation of the particular Building component or system that is the subject of the mock-up.
- (d) The Owner will review mock-ups, in accordance with the process set forth in Section 2.6 (Work Submittal Review Process), for compliance and consistency with the Contract Documents.
- (e) Developer shall ensure that mock-ups:
- (i) are constructed on-site at a location or locations coordinated with the Owner;
 - (ii) are full-size, physical assemblies compliant with the Contract Documents;
 - (iii) accurately demonstrate the aesthetic effects and qualities of materials and execution of design for the applicable Building component or system;
 - (iv) use products, materials, finishes, fabrication methods, details, anchorage systems, and construction methods identical with those required for the Work applicable to the Building component or system represented by the mock-up; and
 - (v) include any shoring and bracing required to support each mock-up.
- (f) Developer shall maintain mock-ups in a clean and undamaged condition during the Construction Period and dispose of mock-ups when no longer required as determined by the Owner. provided that

all mock-ups shall be disposed of no later than Substantial Completion.

- (g) Regardless of any input provided by the Owner in respect of any mock-up, Developer shall be responsible for complying with the requirements set forth in the Contract Documents.

2.5.2.3 Design Work

As part of Developer's Quality Management System, Developer shall be responsible for the quality of the Design Work and shall follow the procedures established in the Design Quality Management Plan, as approved by the Owner. Developer shall:

- (a) execute the Design Work in accordance with the Contract Documents, the Project Management Plan, the Project Schedule and the Design Quality Management Plan;
- (b) be responsible for the quality of the Design Work;
- (c) be responsible for all Design Work Quality Control, whether performed by Developer or Developer-Related Entities, and whether performed during the Construction Period or the Operating Period;
- (d) maintain records of all versions of Design Documents; and
- (e) upon request from the Owner, make all quality records for the Design Work immediately available to the Owner for review. Developer shall provide the Owner with a copy of any and/or all quality records when requested.

2.5.2.4 Construction Work

As part of Developer's QMS, Developer shall be responsible for the quality of the Construction Work and shall follow the procedures established in the Construction Quality Management Plan, to which the Owner has provided its concurrence. Developer shall:

- (a) execute the Construction Work in accordance with the Plans, the Project Management Plan, and all other provisions of the Contract Documents;
- (b) be responsible for bringing in all material and equipment necessary for the performance of the Construction Work;
- (c) execute the Construction Work so as to avoid any interference with the operations of the Owner's Infrastructure, unless otherwise

specified in Section 3 (Design and Construction Requirements) of the Technical Requirements;

- (d) be responsible for the quality of the Construction Work;
- (e) retain a CQAF in accordance with Section 2.5.2.5 (Construction Quality Acceptance Firm) of the Technical Requirements;
- (f) be responsible for all Construction Work Quality Control, whether performed by Developer or Developer-Related Entities, and whether performed during the Construction Period or the Operating Period, including production of materials, placement of the material, workmanship, and a quality management system;
- (g) inspect materials or equipment at the source of supply, manufacture, and/or fabrication, where appropriate in accordance with Best Industry Practice;
- (h) perform materials inspection and testing in accordance with Section 2.5.2.6 (Materials Inspection and Testing) of the Technical Requirements;
- (i) perform construction inspection, sampling and testing to validate the quality control testing in accordance with the PMP;
- (j) maintain a record of all Developer's inspections, including date of inspection, sampling and testing undertaken, and the results of such sampling and testing;
- (k) upon request from the Owner, make all quality records immediately available to the Owner for review. Developer shall provide the Owner with a copy of any and/or all quality records when requested;
- (l) submit to the Owner the results of all internal audits within five (5) Business Days of their completion. When Developer becomes aware of any Nonconforming Work, Developer shall promptly issue a report of the Nonconforming Work, which shall detail any corrective action plan prepared by Developer. Developer shall promptly issue a report upon the resolution of the Nonconforming Work, detailing the corrective actions implemented by Developer including disposition of failing material and/or Work;
- (m) cooperate with the Owner and the CQAF to ensure their ability to perform quality assurance and quality acceptance activities for work performed by Developer and Developer-Related Entities;

- (n) delegate to the CQAF unfettered rights and obligations for on-site inspection, sampling and testing of the Work for compliance with the requirements of the PMP and the Contract Documents;
- (o) on a weekly basis, Developer shall provide the Owner with a rolling three-week inspection notice. The inspection notification shall include the fabrication schedule and planned Construction Work for the Project;
- (p) make allowance for the activities of the CQAF in schedules prepared by Developer and in the execution of the Construction Work;
- (q) provide the Owner and the CQAF safe and unrestricted access to any part of the Project or facilities where Work is being undertaken that will ultimately be incorporated into the Project, including such locations and facilities where materials or equipment are sourced, manufactured, and/or fabricated;
- (r) provide all Developer quality reports concurrently to the Owner and the CQAF;
- (s) ensure that Developer-Related Entities and the CQAF comply with all parts of the PMP; and
- (t) beginning at NTP 2 and until Final Acceptance, provide access on the Project Site to the plans, specifications, and the Contract Documents in electronic or hardcopy format.

2.5.2.5 Construction Quality Acceptance Firm

2.5.2.5.1 Developer shall retain a Construction Quality Acceptance Firm (CQAF) to perform construction quality acceptance services for all of the Construction Work required by the Technical Requirements beginning at NTP 2 and continuing until Project Final Acceptance. Prior to executing a Contract between Developer and the CQAF, Developer shall submit the Contract to the Owner for review and approval. Any proposed changes to the Owner-approved Contract must be submitted to the Owner for review and comment prior to executing such changes.

2.5.2.5.2 The CQAF may be the Developer's design-build contractor, provided that Developer's design-build contractor maintains formal ISO 9001 certification while performing CQAF services. If the Developer does not require the Developer's design-build contractor to act as the CQAF, then the CQAF shall be a firm independent from the Developer, shall not be a Developer-Related Entity, and shall not be an Affiliate of Developer or any Developer-Related Entity. If the CQAF is the Developer's design-build contractor, then the following Sections of the Technical Requirements will not apply: Sections 2.5.1.2.1(b) and (d); Sections 2.5.1.3 (b), (c), (g)(ii) and (i); Sections

2.5.1.4(e)(i), (f), (y),(z), (aa), (bb), (ee); Section 2.5.2.1(f)(ii); Section 2.5.2.4(r); and Section 2.5.2.5.3(e).

2.5.2.5.3 The services of the CQAF shall be part of Developer's QMS shall include the following services:

- (a) perform independent quality acceptance material testing and inspection;
- (b) perform quality acceptance inspection;
- (c) perform audits addressing compliance with QMP and QMS;
- (d) certify that the Work meets Developer's acceptance criteria;
- (e) provide an appropriate number of quality acceptance staff to handle the volume of quality acceptance activities necessary for the Work in progress;
- (f) provide adequate staff to be responsive to changes in the construction schedule without impacting Developer's activities or achievement of Milestones;
- (g) provide reports concurrently to Developer and the Owner;
- (h) maintain a daily log of all inspections performed for both Developer and Contractor operations in a format acceptable to the Owner. The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The responsible technician and supervisor shall sign the daily inspection reports. The results of the daily inspections shall be provided to the Owner in an electronic format on a weekly basis at the Progress Meeting. The Owner may audit the daily log of inspections at any time; and
- (i) utilize the PMCS for recording all material test results. The responsible technician and his/her supervisor shall sign the daily test reports. The results of the daily tests shall be provided to the Owner via the PMCS in an electronic format within two (2) Business Days after test completion.

2.5.2.6 Materials Inspection and Testing

Developer shall comply with the following:

- (a) materials inspection tests shall be performed by a firm independent from the Developer (meaning that the firm performing materials

inspection tests shall not be a Developer-Related Entity, and shall not be an Affiliate of Developer or any Developer-Related Entity) and approved by the Building Official, and shall be performed in accordance with the requirements of ASTM or other appropriate accreditation acceptable to the Owner for the pertinent test; and

- (b) inspections, reviews, and testing shall only be performed by personnel with appropriate training and qualifications for each appropriate item of Work (items produced on and off the Project Site) using appropriate equipment that is accurately calibrated in accordance with the manufacturer's specifications and maintained in good operating condition.

2.5.2.7 Supply Source and Material Quality

Quality of all materials shall conform to requirements contained in the Contract Documents and to any requirements of affected Utility Owners. The firm selected in accordance with Section 2.5.2.6 (Materials Inspection and Testing) shall provide plant inspection and aggregate sampling and testing at concrete, steel, precast and asphalt plants. Manufacturers' test reports may supplement, but not replace, the quality acceptance inspections, sampling, testing and certification provisions.

2.5.2.8 Additional Testing

The Owner may direct the location and timing of additional testing to be performed at Developer's expense. Additional testing will not, however, exceed 2% of the testing required under Developer's Quality Management Plan testing frequencies. Additional testing shall be recorded as Owner Directed Testing (ODT) and such testing shall be in addition to that required by the CQMP. Such additional testing shall not be used by Developer to meet the minimum frequencies required by the Construction Quality Management Plan. ODT shall be performed as soon as practical after direction by the Owner. If, after Owner's request for an ODT, Developer performs work which makes the ODT more difficult or expensive, removal and subsequent replacement of Work to allow for testing where directed shall be solely at Developer's expense.

2.5.3 Performance of Quality Management Work relating to O&M Services

As part of Developer's Quality Management System, Developer shall be responsible for the quality of the O&M Services and shall follow the procedures established in the O&M Quality Management Plan, as approved by the Owner. During the performance of the O&M Services, Developer shall conform to the requirements of Section 2.5.2 (Implementation of the Quality Management Systems), with the exception of Section 2.5.2.5 (Construction Quality Acceptance Firm), to which Developer shall conform only in the event of an Owner's Change.

2.6 WORK SUBMITTAL REVIEW PROCESS

2.6.1 General Requirements

2.6.1.1 Except as otherwise provided in the Technical Requirements, the provisions of this Section 2.6 (Work Submittal Review Process) applies to all Design Documents, Construction Documents, Plans and any and all documents to be submitted to, reviewed or otherwise processed by the Owner in respect of the Work to be accomplished throughout the Term, including the items listed in Appendix 4-B (Facilities Submittals), Appendix 4-C (Central Plant Expansion Submittals) and Appendix 4-D (Utility Submittals) of the Technical Requirements, including any and all subsequent revisions, amendments and changes thereto (collectively and individually herein referred to as the “**Work Submittal**” or “**Work Submittals**”).

2.6.1.2 Developer shall submit all Work Submittals set forth in Appendix 4-B (Facilities Submittals), Appendix 4-C (Central Plant Expansion Submittals) and Appendix 4-D (Utility Submittals) by the due date set forth in the applicable appendix, unless otherwise provided in the Contract Documents.

2.6.1.3 Developer shall compile and maintain a record on the PMCS of the date and contents of each Work Submittal and the date of receipt and content of each returned Work Submittal and comments thereon, which shall be provided to the Owner upon request.

2.6.1.4 Each Work Submittal shall conform to the requirements of Appendix 5 (File Naming Convention).

2.6.1.5 Each Work Submittal required by the Contract Documents or by applicable Law to be signed and sealed by persons with professional designations (including, where applicable, by a Registered Professional), shall, where applicable, be so signed and sealed.

2.6.1.6 Each Work Submittal shall include copies of all documents to be reviewed and shall clearly identify the purpose of the Work Submittal and Developer’s proposed course of action and project scope that are the subject of the Work Submittal.

2.6.1.7 Each Work Submittal shall, where applicable, refer to the relevant provisions of the Technical Requirements or the Contract Documents, and to any related Work Submittal that has previously been subject to review.

2.6.1.8 Each Work Submittal shall be clearly identified as a Work Submittal and shall be delivered with appropriate cover letter or documentation, which shall include a list of all attached Work Submittals and for each Work Submittal:

- (a) the document number(s) or drawing number(s);
- (b) revision numbers (if applicable);

- (c) document or drawing title(s);
- (d) name of entity that prepared the Work Submittal;
- (e) the Work Submittal history showing date and delivery information and/or log number of all previous submittals of that Work Submittal including reviewer and checker initials; and
- (f) identification of any previous Work Submittal superseded by the current Work Submittal.

2.6.1.9 Central Plant Expansion Submittals shall include for Owner's approval a description of the type of construction activity relating to the submittal, the number of Developer personnel expected to attend at the Central Plant Expansion Site, specific location and boundaries of the construction activity area within the Central Plant Expansion Site required for the Work, and a detailed schedule for the Work.

2.6.2 Work Submittal Review Process

2.6.2.1 General

Except as otherwise provided in the Technical Requirements, the purpose of the Work Submittal review is for the Owner to review professional services products for general compliance with the Contract Documents, Best Management Practices and Governmental Approvals.

2.6.2.2 Comments

- (a) The Owner shall review and respond to each Work Submittal in accordance with the time periods specified in Section 3.4.8 (Time Periods) of the Agreement. The Owner shall return Work Submittals to Developer and assign one of the following three (3) comments:
 - (i) "REVIEWED";
 - (ii) "REVIEWED WITH COMMENTS"; or
 - (iii) "REJECTED".
- (b) The comment "REVIEWED" will be assigned to those Work Submittals that, in the opinion of the Owner, conform to the requirements of the Contract Documents. Developer shall comply with and implement such Work Submittals.
- (c) The comment "REVIEWED WITH COMMENTS" will be assigned to those Work Submittals that, in the opinion of the Owner, generally conform to the requirements of the Contract Documents, but in

which immaterial deficiencies have been found through the Owner's review. Developer shall correct these Work Submittals and provide a copy of the corrected Work Submittals to the Owner. Developer shall comply with and implement such Work Submittals after correction, in accordance with the comments. If at any time it is discovered that Developer has not corrected the deficiencies on the Work Submittals stamped "REVIEWED WITH COMMENTS", then Developer will be required to modify the Work Submittals as required to ensure that the Work comply with the Contract Documents, and to, at the Owner's discretion, resubmit relevant Work Submittals. No extension of time will be given or additional compensation paid in respect of any such modification or resubmittal.

- (d) The comment "REJECTED" will be assigned to those Work Submittals that, in the opinion of the Owner, contain significant deficiencies or do not generally conform to the requirements of the Contract Documents. Developer shall correct and resubmit these Work Submittals as soon as practicable, or within such longer period as Developer may reasonably require, and as agreed to by Developer and the Owner. The Owner shall then review such resubmitted Work Submittals, within such time periods as specified in Section 3.4.8 (Time Periods) of the Agreement and assign a comment to the corrected Work Submittal. The Work Submittals shall be corrected, revised and resubmitted as often as may be required to obtain a comment of "REVIEWED" from Owner that permits Developer to proceed. No extension of time will be given or additional compensation paid in respect of any such modification or re submittal.
- (e) Upon review of the Central Plant Expansion Submittals, the Owner may:
 - (i) approve or require reasonable adjustments to the submittals in respect of matters described in Section 2.6.1.9 of the Technical Requirements; and
 - (ii) propose reasonable adjustments to the design aspects of the submittals to permit the Owner to efficiently operate and maintain the Central Plant and the Central Plant Expansion upon completion of the Central Plant Expansion Work.

Developer shall modify the submittals as required to ensure that the Work complies with the Contract Documents and with the Owner's requested adjustments, and, at the Owner's discretion, resubmit relevant Central Plant Expansion Submittals. No extension of time

will be given or additional compensation paid in respect of any such modification or resubmittal.

- (f) In those instances in which the Owner issues the comment “REVIEWED WITH COMMENTS” or “REJECTED”, the Owner shall provide reasons for the comment, referencing the particulars of the Section(s) of the Contract Documents that the Work Submittal fails to satisfy, and, if requested by Developer, the Owner’s Authorized Representative shall meet with Developer’s Authorized Representative to discuss the reasons for the comment.
- (g) If, at any time after assigning any comment to a Work Submittal, the Owner or Developer discovers any significant deficiencies or any failure to conform to the requirements of the Contract Documents, the Owner may revise the comment assigned to any Work Submittal. If the Parties agree or it is determined in accordance with the Dispute Resolution Procedure that the revised comment is correct, Developer shall make all such corrections to the Work Submittals. No extension of time will be given or additional compensation paid in respect of any such modification or re submittal.
- (h) For the purpose of facilitating and expediting the review and correction of Work Submittals, the Owner’s Authorized Representative and Developer’s Authorized Representative shall meet as may be mutually agreed to discuss and review any outstanding Work Submittals and any comments thereon.
- (i) Where a Work Submittal is voluminous, the Owner, at its sole discretion, may elect to stamp only the cover page or first sheet of the Work Submittal with the appropriate comment, if any, and return to Developer the cover page or first page together with individual pages or sheets on which comments are made, together with an explanation of the status of all pages not returned to Developer. Any pages returned without such an explanation as to their status shall be deemed to be “REVIEWED” by the Owner.
- (j) In lieu of returning a Work Submittal, the Owner may notify Developer of the comment assigned to the Work Submittal and if such comment is “REVIEWED WITH COMMENTS” or “REJECTED” the notice shall contain comments in sufficient detail for Developer to identify the correction sought.
- (k) In those instances in which Developer must obtain approval from an Owner-Related Entity or a Governmental Entity, Developer shall follow the process established by the Owner-Related Entity or the Governmental Entity and submit the approval from such entity or

authority, once obtained, to the Owner and file a copy of such approval in accordance with Section 2.7.2.4 (Data Management and Document Control Plan) of the Technical Requirements.

2.6.3 Work Submittal Review Process During the Construction Period

2.6.3.1 General

- (a) All Work Submittals submitted by Developer to the Owner, and specifically related to the performance of the Design Work and the Construction Work during the Construction Period shall meet the requirements specified in Appendix 4-B (Facilities Submittals), Appendix 4-C (Central Plant Expansion Submittals) and Appendix 4-D (Utility Submittals), as applicable.
- (b) The review procedure for all Work Submittals to be submitted by Developer to the Owner specifically related to the performance of Design Work and the Construction Work shall follow, without exception, the requirements of Section 2.6.2 (Work Submittal Review Process).
- (c) Where Developer is required to provide a range of options to the Owner in accordance with Section 3.7.5.1 (Optionality Requirements) of the Technical Requirements, Developer shall include a list of the options in the cover letter of the corresponding Work Submittal, along with a graphical representation of each option. With its transmittal of comments to Developer, Owner shall indicate a selection for such options and its approval for such selection, which shall be reflected in the Developer's next submittal.

2.6.3.2 Developer and Owner Collaboration during the Performance of the Design Work

- (a) During the performance of the Design Work, and to the extent practicable, the Owner and Developer shall collaborate and engage in a "shoulder-to-shoulder" review process with an aim to enhance and accelerate the review and approval process for Submittals required during the performance of the D&C Work.
- (b) The collaborative shoulder-to-shoulder review process shall consist of in-person meetings to communicate the progress of the Design Work ("**Shoulder-to-Shoulder Meetings**"). The Parties will work cooperatively to schedule Shoulder-to-Shoulder Meetings.
- (c) Shoulder-to-Shoulder Meetings will:

- (i) involve all relevant decision makers (Owner, Developer, appropriate Key Contractors, Contractors, consultants and peer reviewers);
 - (ii) begin within two weeks from the date of NTP 1 and continue no less than weekly throughout the performance of the D&C Work, unless the Parties mutually agree upon a different time frame for the Shoulder-to-Shoulder Meetings; and
 - (iii) be in addition to the weekly Progress Meetings provided for in Section 2.4.1.3 (Progress Meetings).
- (d) The Parties shall adhere to principles of trust, respect and open communication in pursuit of the following goals:
 - (i) establishing a productive and integrated team and promoting an environment of cooperation, teamwork, and discussion to develop the best solution for the Project within the limits of the Contract Documents;
 - (ii) reducing the time required to perform the D&C Work;
 - (iii) early review and discussion of significant items that could affect the completion of the Design Work and have a major impact on the quality, cost and overall schedule for the Work; and
 - (iv) confirming the requirements of the Contract Documents and resolving outstanding issues concerning the scope of the Work.
- (e) In connection with the Shoulder-to-Shoulder Meetings Developer shall:
 - (i) develop meeting agendas and submit to the Owner within a reasonable time prior to the meeting;
 - (ii) record and distribute minutes;
 - (iii) provide early drafts of related Submittals to the Owner to facilitate the Owner's ultimate formal review; and
 - (iv) ensure that relevant key Developer personnel from the appropriate design disciplines are present to accommodate timely discussion and collaboration.
- (f) The Shoulder-to-Shoulder Meetings process:

- (i) shall not constitute a formal review procedure and shall only be considered by Developer as informal, non-binding input from the Owner; and
- (ii) shall not affect Developer's compliance with the Project Schedule and the Work Submittal design review process set forth in this Section 2.6 (Work Submittal Review Process) of the Technical Requirements.
- (g) Regardless of any input provided by the Owner during the Shoulder-to-Shoulder Meetings process, Developer shall be responsible for complying with the requirements set forth in the Contract Documents.

2.6.3.3 Final Design Documents Submittal for Each Facility

- (a) The Final Design Documents shall be submitted to the Owner for review and comment in accordance with Section 2.6.2 (Work Submittal Review Process), and Developer's Design Quality Manager shall provide a certification of compliance with the Technical Requirements.
- (b) Design packages for individual Construction Work items, elements or phases within the Final Design Documents shall be organized such that the final document package can be assembled in a manner mutually agreed upon by Developer and the Owner.
- (c) The Final Design Documents shall include a complete set of such Final Design Documents incorporating all of the design submittal review comments received from Owner. All documentation shall be provided with the submittal of the Final Design Documents.
- (d) Developer shall provide quantity estimates for Construction Work covered by the Final Design Documents. The quantity estimates shall be in units consistent with the quality acceptance and quality review sampling and testing requirements in the CQMP.

2.6.3.4 Additional Reviews Required for Design Work During the Construction Period

2.6.3.4.1 Developer shall ensure that all Design Work is subject to an independent seismic peer review by an appropriately licensed independent firm that is not an Affiliate of Developer or any Developer-Related Entity. The Independent seismic peer review shall be complete prior to submission of Final Design Documents to the Division of the State Architect (DSA) for ADA compliance review. Developer shall submit a certification to the Owner signed by a structural engineer registered in the State of California indicating that the independent seismic peer review has been performed and the Final

Design Documents are in compliance with applicable Law and Best Management Practice.

2.6.3.4.2 Before the commencement of Construction Work, Developer shall obtain written approval for the Final Design Documents from the Designated Campus Fire Marshal in regards to fire safety, life safety and egress routes and submit such written approval to the Owner.

2.6.3.4.3 Developer shall perform a constructability review of the Central Plant Expansion Work. The constructability review shall address and ensure the constructability of the Central Plant Expansion and the strategy for ensuring access for future maintenance. Developer shall submit the results of the Central Plant Expansion constructability review to the Owner as a report stating that the Central Plant Expansion Design Work is satisfactory and can be constructed as designed, or if there are design conflicts to be addressed prior to commencement of the Construction Work for the Central Plant Expansion stating how the conflicts will be addressed. The Central Plant Expansion constructability report shall be submitted in accordance with the procedures set out in Section 2.6 (Work Submittal Review Process) and submitted with the following submittals in accordance with Appendix 4-C (Central Plant Expansion Submittals) of the Technical Requirements:

- (a) one hundred (100) percent Schematic Design submittal;
- (b) one hundred (100) percent Design Development Submittal; and
- (c) one hundred (100) percent Construction Documents submittal.

2.6.3.4.4 Developer shall perform a commissionability review of the Central Plant Expansion Work. The commissionability review shall be performed by the Commissioning Professional and comply with the LEED enhanced commissioning credit. The Central Plant Expansion commissionability review report shall be submitted to Owner in compliance with the procedure set out in Section 2.6 (Work Submittal Review Process) and submitted with the following submittals in accordance with Appendix 4-C (Central Plant Expansion Submittals) of the Technical Requirements:

- (a) Intentionally deleted;
- (b) one hundred (100) percent Design Development Submittal; and
- (c) one hundred (100) percent Construction Documents submittal.

2.6.3.4.5 Intentionally deleted..

2.6.3.5 Certification of Compliance During the Construction Period

2.6.3.5.1 When Developer has completed the Final Design Documents for any element or phase of the Work and wishes to initiate the Owner's review and comment of

such Final Design Documents, Developer's Quality Manager shall certify that the documents that constitute such final Work Submittal:

- (a) are in full compliance with the Contract Documents, the Technical Requirements and applicable Law;
- (b) have been checked in accordance with Developer's approved DQMP;
- (c) are ready for construction; and
- (d) Developer has obtained all Governmental Approvals and Utility Owner approvals, as required for Utility related Work to be performed during such phase of the Construction Work.

2.6.3.5.2 After all concerns and questions have been resolved to the satisfaction of the Owner, Developer shall provide the Final Design Documents package to the Owner. Developer's Final Design Documents package shall include, where applicable:

- (a) design drawings;
- (b) design calculations;
- (c) design reports;
- (d) specifications;
- (e) electronic files;
- (f) Governmental Approvals;
- (g) Utility Owner approvals; and
- (h) Change Orders.

2.6.3.5.3 The Owner's concurrence with the Quality Manager's certification of compliance will not constitute approval of the design or subsequent construction, nor relieve Developer of its responsibility to meet the Technical Requirements. Irrespective of whether the Owner provides Developer with the authority to begin construction on items, elements, or phases of the Work prior to completion of the design for the entire Project, Developer shall bear the responsibility to assure that Construction Work meets the requirements of the Contract Documents, the Technical Requirements, applicable Law and Governmental Approvals.

2.6.3.5.4 Construction Work of any item, element or phase covered by the Quality Manager's certification of compliance of said item, element, or phase shall only progress to the extent covered by the Final Design Documents package in which they are included. Any items, elements or phases of design, subsequent to the certification

of compliance from Quality Manager, shall be checked and certified by the Quality Manager in the same manner indicated above.

2.6.3.5.5 If the Owner determines that the Final Design Documents do not meet the requirements of the Contract Documents, applicable Law and/or the Governmental Approvals, the Owner shall notify Developer in writing of any specific deficiencies in the Final Design Documents. Developer shall correct such deficiencies; modify the Final Design Documents; and, if necessary, modify any Construction Work upon receipt of the Owner's comments.

2.6.3.5.6 If there is evidence that the DQMP procedures, as implemented, are not adequate, as evidenced by the Owner's oversight reviews or problems during the Construction Period, the Owner may, require correction of design and/or construction defects and modifications to the DQMP.

2.6.3.6 As-Built Plans

2.6.3.6.1 As a condition precedent to achieving Facility Final Acceptance for each Facility, Developer shall submit to the Owner a complete set of drawings that show in red ink changes made to the Final Design Documents in the course of construction (the "**As-Built Plans**") for that Facility in PDF file format and native electronic format. The As-Built Plans and documentation shall be an organized, complete record of Plans and supporting calculations and details that accurately represent what Developer constructed.

2.6.3.6.2 Developer shall ensure that the As-Built Plans reflect the actual condition of the constructed Work for each Facility or Project element.

2.6.3.6.3 Developer shall perform a GPS survey for all As-Built Plans showing underground Utilities or Facilities.

2.6.3.6.4 During the performance of the Construction Work, Developer shall submit to Owner As-Built Plans as requested by the Owner's Authorized Representative.

2.6.3.6.5 At the completion of every milestone identified in the Project Schedule, Developer shall submit to the Owner partial As-Built Plans (the "**Redline As-Built Plans**") demonstrating the current level of completion of the Facility or Project element depicted in such As-Built Plans. At a minimum, Developer shall submit Redline As-Built Plans to the Owner: (i) at completion of Construction Work for underground Utilities for each Facility, and (ii) prior to Occupancy Readiness of each Facility. The Redline As-Built Plans shall serve as the basis for the As-Built Plans.

2.6.3.7 Work Submittal Review Schedule

2.6.3.7.1 Developer shall develop a schedule of Work Submittals to be followed during the Construction Period that is consistent with the Contract Documents, the PMP and the Project Schedule. The schedule shall include all Work Submittals beginning at NTP 1 and ending with Project Final Acceptance. Work Submittals relating to Design

Work and Construction Work for construction milestones identified in the Project Schedule, and Work Submittals relating to major equipment or long lead time items, shall be reflected in the Project Schedule.

2.6.3.7.2 Reviews of Work Submittals shall be, to the extent practicable, evenly scheduled during the duration of the Construction Period. Work Submittals shall be logically organized into manageable pieces. All Work Submittals shall be provided in a format in accordance with Section 2.6.3.8 (Work Submittals Format).

2.6.3.8 Work Submittals Format

2.6.3.8.1 Unless otherwise specified by the Owner, Developer shall furnish all Work Submittals by way of electronic copy through the PMCS. Printed copies of Work Submittals shall only be submitted to the Owner at the request of the Owner's Authorized Representative. Developer shall provide to the Owner a PDF electronic copy of each submittal with the electronic file in native format. The PDF electronic file shall have the signature of an authorized representative of Developer and shall have an appropriate resolution for its intended use.

2.6.3.8.2 Developer shall include with each Work Submittal a transmittal cover sheet in a form acceptable to the Owner.

2.6.3.8.3 The minimum sheet size for submittals shall be eight and a half (8.5) inches by eleven (11) inches, and the sheet size for plans and drawings shall be no less than twenty-four (24) inches by thirty-six (36) inches. Every page in a submittal shall be numbered in sequence.

2.6.3.8.4 All Plans shall be signed and sealed by the Engineer of Record or Architect of Record.

2.6.4 Work Submittal Review Process during the Operating Period

The review procedure for all Work Submittals to be submitted by Developer to the Owner during the Operating Period shall follow the requirements of Section 2.6.2 (Work Submittal Review Process).

All final Work Submittals by Developer to the Owner during the Operating Period shall be signed, stamped or certified by a Registered Professional or Developer's Authorized Representative, as appropriate.

2.7 PROJECT MANAGEMENT PLAN

2.7.1 General

2.7.1.1 Developer shall prepare and submit to the Owner for review and approval a Project Management Plan (“**PMP**”), in accordance with this Section 2.7 (Project Management Plan) and Best Management Practices.

2.7.1.2 The PMP and any and all of the components, sub-plans and elements shall be revised as required in accordance with Sections 2.7.7.2.7 and 2.7.7.2.8.

2.7.1.3 The PMP shall include the following elements:

2.7.1.3.1 Project Approach, Schedule and Phasing

This section of the PMP shall provide a description of the overall approach to the Project schedule and phasing, including references to the commissioning and activation of each Facility, Building and any aspect of the Project. This section shall also describe which Contractors and individuals will have responsibilities related to the delivery of each major part of the D&C Work. The approach shall describe the anticipated sequence of work, describe the approach to procurement oversight for each major part of the construction schedule, and show the personnel and contractors responsible for transitioning between the delivery of the Construction Work and the O&M Services.

2.7.1.3.2 Reporting

This section of the PMP shall provide a description of the progress reporting and coordination processes that will be utilized throughout the Term. This section shall establish the basic working structure of the PMCS, as described in Section 2.4.10.1 (Project Management Controls System) of the Technical Requirements and define a timeline for phasing its use. This section shall also include a description of the CMMS to be utilized during the Operating Period and its integration with the PMCS.

2.7.1.3.3 Risk Management

The PMP shall describe, where applicable throughout the PMP, the approach to identification, management, mitigation, and allocation of Project-specific risks related to the Design Work and the Construction Work, and shall include risk-mitigation strategies and specific procedures for responding in the event risks occur.

2.7.1.3.4 Communications

The PMP shall describe how Developer will coordinate requests for information or changes in an integrated manner with Developer’s design-build contractor and Developer’s operations and maintenance contractor, both prior to changes being made to Contract Documents and during implementation.

2.7.2 General PMP Sub-Plans

The following General PMP Sub-Plans shall be prepared by Developer and submitted as part of the PMP:

2.7.2.1 Staffing Management Plan

2.7.2.1.1 As part of the PMP, Developer shall prepare, implement, manage, and, as required, update a Staffing Management Plan in accordance with this Section 2.7.2.1 and the Contract Documents.

2.7.2.1.2 The Staffing Management Plan shall:

- (a) identify key individuals and set forth reporting lines, responsibilities, and authority;
- (b) include details on how the various organizations within Developer and Developer-Related Entities will be interlinked and managed;
- (c) include details of management structures and management systems to be used for Project;
- (d) include details of the interface protocols and systems Developer and Developer-Related Entities shall utilize for interaction among each other, with the owner, third parties, and the public; and
- (e) identify key individuals who will be responsible for any operations and maintenance activities during the Construction Period, if applicable, and the integration of these key individuals with design and/or construction activities.

2.7.2.2 Intentionally deleted

2.7.2.3 Public Information and Communications Plan

As part of the PMP, Developer shall prepare, implement, manage, and, as required, update a Public Information and Communications Plan. The Public Information and Communications Plan shall describe Developer's strategy for the dissemination of information to the Users, stakeholders and the general public, as related to future or current Work and the process to coordinate such information and communications and to obtain approval from the Owner for the dissemination of such information. Developer shall clearly state the methods for the dissemination of information and communication. Developer shall be responsible for the implementation of such methods in accordance with the Public Information and Communications Plan.

2.7.2.4 Data Management and Document Control Plan

2.7.2.4.1 As part of the PMP, Developer shall prepare and submit a Data Management and Document Control Plan (DMDCP).

2.7.2.4.2 In the DMDCP, Developer shall describe:

- (a) methods by which all Project-related documents, data, and records shall be uniquely coded, stored, accessed in real-time as may be necessary and/or retrieved. The retrieval system shall allow for prompt, convenient retrieval of any Project-related document in a user friendly format;
- (b) the routing, filing, control, access, and retrieval methods for all documents; and
- (c) procedures for communication of Project information between Developer and the Owner.

2.7.2.5 Quality Management Plan

Developer shall prepare the Quality Management Plan (QMP) in accordance with the requirements set forth in Section 2.5.1 (Quality Management Plan Requirements) of the Technical Requirements.

2.7.2.6 Environmental Management Plan

2.7.2.6.1 As part of the PMP, Developer shall prepare and submit to the Owner an Environmental Management Plan (EMP) for the Project. Developer shall develop, implement, and manage an Environmental Management Plan, which shall:

- (a) describe the Developer's methods for complying with the requirements of Section 2.4.13 (Environmental Requirements) of the Technical Requirements and all applicable Environmental Laws;
- (b) provide for updates to the Owner throughout the Term regarding Developer's performance of the obligations set forth in Section 2.4.13 (Environmental Requirements) of the Technical Requirements;
- (c) describe Developer's methods and approach to:
 - (i) performing a biological resources feasibility analysis, developing an active bird nest and burrow avoidance plan and complying with the requirements of Section 2.4.13.2 (Biological Resources) of the Technical Requirements;

- (ii) performing historical, archaeological and paleontological evaluations, developing a program for management of historical, archaeological and paleontological resources and complying with the requirements of Section 2.4.13.6 (Archaeological Resources) and Section 2.4.13.7 (Paleontological Resources) of the Technical Requirements;
- (iii) performing geotechnical investigations and complying with the requirements of Section 3.1.3 of the Technical Requirements; and
- (iv) performing a noise study, developing a construction noise and vibration mitigation program and complying with the requirements of Section 2.4.13.4 (Noise Mitigation) and of Section 2.4.13.9 (Vibration) of the Technical Requirements).

2.7.2.6.2 Developer shall develop, implement, and manage the following additional plans within the EMP:

- (a) Sustainability Measurement and Verification Plan:

The plan shall outline the approach for monitoring and providing ongoing measurement and verification capabilities in line with requirements of LEED v. 3.0 and IPMVP.

- (b) Environmental Communication Plan

The plan shall outline communication protocols to communicate key environmental commitments; compliance, noncompliance, and/or violations of environmental commitments; and any permitting issues and/or approvals. The plan shall provide that issues that may impact schedules or may result in non-compliance of environmental commitments shall be communicated to the Owner, in a timely manner as defined.

- (c) Environmental Workforce Training

The plan shall describe Developer's methods and approach to educating Developer's personnel regarding Project environmental compliance to ensure awareness and compliance, during the Construction Period and the Operating Period, with Developer's obligation under Section 2.4.13 (Environmental Requirements) of the Technical Requirements. The plan shall include that Developer shall provide this training under the guidance of Owner and that training events will take place on a quarterly basis, with added events/updates provided as Developer's staff changes.

(d) **Environmental Commitment Tracking and Reporting System**

The plan shall describe Developer's methods and approach to implementing an Environmental Commitment Tracking and Reporting System to monitor and document progress of commitments in the form of a report to be delivered to the Owner as part of the Monthly Progress Report described in Section 2.4.1.5 (Progress Reports) of the Technical Requirements. The plan shall provide that Developer shall monitor and document all noncompliances with environmental commitments as set forth in these Contract Documents and report on their status to the Owner in the Monthly Progress Report.

2.7.2.7 Health and Safety Plan

2.7.2.7.1 Developer shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work and shall be responsible for the safety of its personnel, Users and of the general public affected by the Work.

2.7.2.7.2 As part of the PMP, Developer shall prepare a comprehensive Health and Safety Plan (HSP) that complies with OSHA requirements. The HSP shall fully describe Developer's policies, plans, training programs, Work Site controls, and Incident Response plans to ensure the health and safety of personnel involved in the Project, Users and the general public affected by the Project during the Term.

2.7.2.7.3 Developer's HSP shall address procedures for immediately notifying the Owner of all Incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Project.

2.7.2.7.4 Developer's HSP shall describe Developer's methods and procedures for complying with the following occupational health and safety obligations:

- (a) Developer shall take any needed action or proceed as directed, to protect the life, health, and general occupational welfare of personnel employed on the Project, to provide confined space training on the proper use of the testing equipment and all safety procedures to ensure a safe operation to Developer personnel and Owner personnel required to access the area for inspection purposes and to provide all safety and testing equipment required to both Owner personnel and Developer personnel to ensure the safety of all workers and inspectors during construction operations and inspection operations of any confined spaces. Developer shall also provide proof of training, such as a course sign-in sheet or certificate of training. Developer shall provide appropriate rescue services, personnel, and equipment.

- (b) If, in the Owner's opinion, persons on the Work Site are exposed to extraordinary conditions which could or do constitute a hazard, Developer shall modify such equipment, devices, and job procedures to ensure protection against the hazard or to reduce the risk.
- (c) Developer shall give special emphasis to providing safeguards for any unusually hazardous operations and health hazards and include initial training and continuing instruction for all employees to enable them to perform work in a safe manner. Such initial training and continuing instruction shall include instruction in project safety practices, manner of reporting accidents, availability of medical facilities, and explanation of individual responsibility for accident-free operations.
- (d) Developer shall require all persons to wear personal protective equipment at all times and in compliance with all applicable Law.
- (e) Developer shall erect and maintain, as required by existing conditions and performance of the Work, adequate safeguards for safety and protection, including adequate lighting and ventilation, and appropriate danger signs and shall provide warnings and notices against hazards to the Owner, Users and owners and users of lands adjacent to the Work Site.

2.7.2.7.4.1 Accessibility of Fire Hydrants

Developer's HSP shall describe Developer's methods and approach to ensuring that fire hydrants adjacent to the Construction Work readily accessible to fire apparatus and material or other obstructions are not placed within fifteen (15) feet of any hydrant.

2.7.2.7.5 The HSP shall include, at a minimum:

- (a) lock out/tag out procedures;
- (b) hot work procedures;
- (c) frequency of safety meetings and typical topics;
- (d) approach for ensuring that subcontractors adhere to Developer's safety requirements;
- (e) contingency plans for emergencies (i.e. how first aid and/or serious accidents will be handled);
- (f) accident reporting, investigation, and follow up procedures;

- (g) a discussion of which employees, if any, have been trained to use fire extinguishers, trained in CPR, or any other special safety related training, fire and life safety training programs and orientation procedures for new employees;
- (h) a description of how Developer will comply with the following EIS/EIR requirements:
 - (i) work with the Owner to develop and conduct fire and life safety training programs for all Developer personnel and appropriate subcontracted personnel. New hires to be given training within their first sixty (60) days with refresher sessions for all employees conducted on an eighteen (18) month basis; and
 - (ii) fire drill/building evacuations performed annually. Developer will coordinate with the Owner for all emergency procedures, such as the fire drill;
- (i) Developer's HAZCOM Program;
- (j) procedures for ensuring safety and OSHA/CAL-OSHA compliance (e.g., scaffolding, ladders, working at heights, confined spaces, lockout/tagout, work permits);
- (k) procedures for complying with all environmental/regulatory requirements including CUPA requirements; and
- (l) requirements to ensure that when Developer is excavating any trench or trenches five feet or more in depth, Developer shall, prior to commencement of the excavation work, prepare detailed plans showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground and comply with the requirements of Section 6705 of the California Labor Code. The plan shall be prepared by a registered civil or structural engineer.

2.7.2.8 Emergency Management and Disaster Recovery Plan

2.7.2.8.1 As part of the PMP, Developer shall prepare and submit an Emergency Management and Disaster Recovery Plan (EMDRP) that covers the procedures for Emergency, Incidents and Force Majeure Events that may disrupt the Work or damage the Project. The EMDRP shall describe Developer's plan for responding to Emergency incidents including:

- (a) severe weather incidents, including seismic events;

- (b) power failures that may affect Facilities, Infrastructure, Facility Systems, or any portion of the Project;
- (c) incidents that may damage facilities or interfere with pedestrian or bicycle circulation or traffic flow; and
- (d) hazardous materials spills including flammable liquids.

2.7.2.8.2 The EMDRP shall set out Developer's systems and procedures for limiting disruption to the Work and protecting documents and data in case of disaster, and promptly resume Work and restore the Project post-disaster.

2.7.2.8.3 Developer's EMDRP shall:

- (a) identify relevant systems and their level of criticality to the Work and the continuing operation of the Project;
- (b) identify the relevant personnel required for the proper functionality of the Facilities;
- (c) categorize the different types of data, systems, and operations according to their criticality;
- (d) identify the levels of redundancy, security, verification and any other precautions required to protect and restore critical systems and data;
- (e) identify potential disaster and major hazards to the Project and Developer's action plan and procedures in response to each to restore Project operation after such event;
- (f) describe how Developer shall coordinate with the Owner, local law enforcement agencies and emergency personnel, and affected third parties in response to Emergencies and Incidents;
- (g) describe how Developer will notify the public about the Emergencies and Incidents; and
- (h) describe Developer's data backup process to safeguard the integrity of the data in the PMCS, CMMS and other systems, as appropriate.

2.7.2.8.4 Developer shall provide the Owner staff with training in the relevant disaster recovery procedures and systems utilized by Developer.

2.7.2.9 Energy Management and Conservation Plan

Developer shall prepare and submit to the Owner an Energy Management and Conservation Plan describing Developer's plan to meet the requirements set forth in Appendix 17 (Energy Utilities Management) of the Agreement. The Energy Management and Conservation Plan shall be reviewed and revised, as appropriate, in accordance with Section 2.7.7.2 (PMP Submittals Review, Approval and Revision Procedure) of the Technical Requirements.

2.7.3 D&C Sub-Plans

During the Construction Period Developer shall perform the Work in accordance with the General PMP Sub-Plans and the D&C Sub-Plans and shall update the General PMP Sub-Plans and the D&C Sub-Plans in accordance with Sections 2.7.7.2.7 and 2.7.7.2.8 of the Technical Requirements. Notwithstanding the foregoing, during the Operating Period Developer shall comply with the D&C Sub-Plans in connection with any design and construction related Work.

The D&C Subplans shall include a framework for meetings with the Owner, other interested stakeholders and Developer to collaborate on Project issues, access issues, coordination issues and any other issues arising prior to Substantial Completion with a view towards streamlining the satisfactory resolution of issues arising during the Construction Work.

2.7.3.1 Intentionally deleted

2.7.3.2 Design Management Plan

2.7.3.2.1 Developer shall prepare and submit a Design Management Plan (DMP) that describes Developer's approach to the Design Work throughout the Construction Period. The DMP shall include the following:

- (a) Staffing Management Plan following the general requirements of Section 2.7.2.1 (Staffing Management Plan), and as applicable only to the performance of the Design Work;
- (b) reporting structure following the general requirements of Section 2.7.1.3.2 (Reporting), and as applicable only to the Design Work. The reporting structure shall demonstrate the interface or coordination with the staff performing the Construction Work; and
- (c) a Design Quality Management Plan following the general requirements of Section 2.5.1.3 (Design Quality Management Plan).

2.7.3.3 Construction Management Plan

2.7.3.3.1 Developer shall prepare and submit a Construction Management Plan (CMP) that describes Developer's approach to the Design Work throughout the Construction Period. The CMP shall include the following:

- (a) Staffing Management Plan following the general requirements of Section 2.7.2.1 (Staffing Management Plan), and as applicable only to the performance of the Construction Work;
- (b) reporting structure following the general requirements of Section 2.7.1.3.2 (Reporting), and as applicable only to the Construction Work. The reporting structure shall demonstrate the interface or coordination with the staff performing the Design Work, as well as coordination and input provided by staff who shall perform the Work related to Operating Period;
- (c) an Environmental Management Plan following the general requirements of Section 2.7.2.6 (Environmental Management Plan), and as applicable only to the performance of the Construction Work;
- (d) a Health and Safety Plan (HSP) following the general requirements of Section 2.7.2.7 (Health and Safety Plan), and as applicable only to the performance of the Construction Work;
- (e) an Emergency Management and Disaster Recovery Plan following the general requirements of Section 2.7.2.8 (Emergency Management and Disaster Recovery Plan), and as applicable only to the performance of the Construction Work;
- (f) a Construction Quality Management Plan following the general requirements of Section 2.5.1.4 (Construction Quality Management Plan); and
- (g) an approach to developing and finalizing all D&C Punch Lists and Facility Punch Lists, in accordance with the procedures set forth in Section 4.9.3.2 through Section 4.9.3.5 of the Agreement, including a schedule that shall indicate the projected dates of the development and preparation of such Punch Lists.

2.7.3.4 Public Information and Communications Plan for the Construction Period

As part of the D&C Sub-Plans, Developer shall prepare and submit a Public Information and Communications Plan following the general requirements of Section 2.7.2.3 (Public Information and Communications Plan), as applicable to the Construction Period.

2.7.3.5 Intentionally deleted

2.7.3.6 Commissioning Plan

As part of the D&C Sub-Plans, Developer shall prepare and submit a Commissioning Plan and a CPE Commissioning Plan in accordance with Section 3.11.4 (Commissioning Plan) and Section 3.11.9.4 (CPE Commissioning Plan) of the Technical Requirements.

2.7.3.7 Utility Shutdown Plan

As part of the PMP, Developer shall prepare and submit a Utility Shutdown Plan in accordance with Section 3.5.4 (Utility Shutdown Plan) of the Technical Requirements.

2.7.3.8 Stormwater Management Plan

Developer shall prepare and submit a stormwater management plan consistent with the stormwater management plan included with the Developer's Proposal (the "Stormwater Management Plan"). The Stormwater Management Plan shall that describes Developer's approach to complying comply with the requirements set forth in Section 3.5.6.1 (Stormwater) of the Technical Requirements.

2.7.4 O&M Sub-Plans

The Operations and Management Plan, Master Maintenance Plan, Renewal Work Plan, Customer Service Center Plan and Refrigerant Management Plan are the "O&M Sub-Plans". The O&M Sub-Plans shall only be applicable during the Operating Period. In addition to the O&M Sub-Plans, Developer shall continue to perform the Work in accordance with the General PMP Sub-Plans and shall update the O&M Sub-Plans and the General PMP Sub-Plans in accordance with Sections 2.7.7.2.7 and 2.7.7.2.8 of the Technical Requirements.

2.7.4.1 Operations and Maintenance Plan

As part of the O&M Sub-Plans, Developer shall prepare and submit an Operations and Management Plan (OMP) that describes Developer's approach to the O&M Services throughout the Operating Period. The OMP shall include the following:

- (a) a Staffing Management Plan following the general requirements of Section 2.7.2.1 (Staffing Management Plan), and as applicable only to the performance of the O&M Services;
- (b) reporting structure following the general requirements of Section 2.7.1.3.2 (Reporting), and as applicable only to the O&M Services;

- (c) an O&M Quality Management Plan following the general requirements of Section 2.5.1.5 (O&M Quality Management Plan);
- (d) a description of Developer's approach to performance of the O&M Interface Obligations; and
- (e) a framework for Developer to participate with the Owner to discuss O&M Services performance issues, custodial interface services, general communication with stakeholders, and any other matters arising in connection with the O&M Services at the Facilities, with a view toward fostering cooperation and better services by all during the Operating Period.

2.7.4.2 Master Maintenance Plan and Renewal Work Plan

Developer shall prepare and submit a Master Maintenance Plan and a Renewal Work Plan in accordance with the general requirements set forth in Section 4.2.1 (Master Maintenance Plan) and Section 4.2.2 (Renewal Work Plan) of the Technical Requirements.

2.7.4.3 Customer Service Center Plan

2.7.4.3.1 Developer shall develop a Customer Service Center Plan to address the operation of the Customer Service Center, incorporating customer interface procedures and protocols, work reception, scheduling, and dispatch.

2.7.4.3.2 Plan components shall include all functional categories detailed in Section 4.3.1 (CSC Services) of the Technical Requirements as well as operational processes related to planned and unplanned inspections and maintenance, Facilities modifications, renewal work, roads and landscape maintenance.

2.7.4.3.3 The Customer Service Center Plan shall show how Developer establishes and maintains an effective building management program and how it will interface with the Owner's management of the Existing Campus to ensure the highest level of attention is given to Facilities maintenance requirements. This plan shall outline communication protocols and contacts between Developer and the Owner.

2.7.4.3.4 The Customer Service Center Plan shall show how Developer will manage Campus-Related Call Requests and manage and respond to Project-Related Service Requests, manage the scheduling of maintenance and repair work by field personnel and completion of reporting and data entry relating to Project-Related Service Requests. The plan shall include a description of Developer's processes for tracking start, stop and pause times, materials expended, equipment and asset data, technician comments, root cause analysis and failure data, customer satisfaction information. The plan shall include processes for self-monitoring of performance by Developer and plans for meeting Developer's reporting obligations during the Operating Period.

2.7.4.4 Refrigerant Management Plan

Developer shall prepare and submit a Refrigerant Management Plan in accordance with Section 4.4.5.2.5(b) of the Technical Requirements.

2.7.4.5 Integrated Pest Management Plan

Developer shall prepare and submit an Integrated Pest Management Plan that:

- (a) describes Developer's approach to managing the interface between design and construction of the Facilities, performance of O&M Services and Owner's responsibility for pest management services as an Excluded O&M Service; and
- (b) demonstrates an approach to pest management that is integrated with the design of the Facilities, and that minimizes the ongoing operational pest management activities.

2.7.5 Transition and Training Plan

Developer shall provide a comprehensive Transition and Training Plan to Owner for Owner's approval at least twelve (12) months prior to the end of the Term.

Additionally, at least six (6) months prior to the end of the Term, Developer shall provide a comprehensive O&M training session for Owner's staff. The training session shall include a review of certain Project records as well as all O&M Manuals, and other plans and procedures. The complete curriculum for this training session shall be contained in the Transition and Training Plan.

2.7.6 Handback Renewal Work Plan

Developer shall prepare and submit to the Owner a Handback Renewal Work Plan in accordance with the requirements of Section 5.1 (Handback Renewal Work Plan) of the Technical Requirements.

2.7.7 Project Management Plan Approval

2.7.7.1 PMP Submittals

Developer shall submit the components of the PMP for Owner's review and approval by the due dates specified in Appendix 4-A (Project Schedule and Project Management Plan Submittals) of the Technical Requirements, unless otherwise provided in the Contract Documents.

2.7.7.2 PMP Submittals Review, Approval and Revision Procedure

2.7.7.2.1 Developer shall obtain Owner's approval of the PMP Submittals in accordance with the procedures set forth in this Section 2.7.7 (Project Management Plan Approval).

2.7.7.2.2 The following clauses of Section 2.6 (Work Submittal Review Process) of the Technical Requirements shall apply, modified accordingly to reflect that submittals are PMP Submittals and to reflect the requirements of this Section 2.7.7.2, to the submission, review and approval process for the PMP Submittals: Sections 2.6.1.3, 2.6.1.6, 2.6.1.8 and 2.6.2 (Work Submittal Review Process).

2.7.7.2.3 Upon review of each PMP Submittal, the Owner may propose reasonable alterations to the submitted PMP or PMP sub-plans to ensure that the performance of the Work minimizes interruption of Campus Operations and facilitates the Owner's operations and maintenance of the Existing Campus. Developer shall modify the applicable PMP or PMP sub-plans as required to ensure that PMP or PMP sub-plans comply with the Contract Documents and with the Owner's reasonable alterations, and, at the Owner's discretion, resubmit applicable PMP Submittal. Once Owner approves the PMP Submittal, Owner will stamp the Submittal as "APPROVED" or otherwise provide written notice to Developer that the Submittal has been approved.

2.7.7.2.4 Unless otherwise agreed by the Parties, Developer shall provide to Owner a PDF electronic copy of each PMP Submittal with electronic file(s) in native format. The minimum size for PMP Submittals shall be eight and a half (8.5) inches by eleven (11) inches, and the sheet size for any plans and drawings accompanying the PMP Submittals shall be eleven (11) inches by seventeen (17) inches, folded into the document.

2.7.7.2.5 Those components of the PMP required as a condition precedent to obtain NTP 1 shall be submitted by Developer for Owner's approval at least ten (10) days in advance of the target date for NTP 1.

2.7.7.2.6 Those components of the PMP required as a condition precedent to obtain NTP 2 shall be submitted by Developer for Owner's approval at least ten (10) days in advance of the target date for NTP 2.

2.7.7.2.7 Except as otherwise provided in the Contract Documents, all sections and sub-plans contained in the PMP shall be reviewed for applicability, at a minimum, every six (6) months during the Construction Period and every twelve (12) months during the Operating Period, and Developer shall update and revise as required, subject to the Owner's approval.

2.7.7.2.8 Except as otherwise provided in the Contract Documents, each revision of the PMP shall be submitted by Developer to the Owner for review and approval in accordance with the procedures set forth Section 2.6 (Work Submittal Review Process) and this Section 2.7.7.2 (PMP Submittals Review, Approval and Revision Procedure) of the Technical Requirements.

2.7.7.2.9 Developer shall adhere to, update and maintain as current the “APPROVED” version of the PMP and each sub-plan of the PMP.

2.8 REPORTING REQUIREMENTS

2.8.1 Requirements

Developer shall submit to the Owner the reports listed in Table 2.8.2 (Construction Period Reporting Requirements) and Table 2.8.3 (Operating Period Reporting Requirements).

2.8.2 Construction Period

Construction Period Reports		
Report	Technical Requirements Section	Reporting Frequency
Monthly Progress Report	<u>Section 2.4.1.5</u>	Monthly until Final Acceptance
Quarterly Quality Report	<u>Section 2.5.2.1(i)</u>	With Monthly Progress Report in accordance with <u>Section 2.5.2.1(i)</u>
Project Schedule Updates	<u>Section 2.4.2.4</u>	Due with Monthly Progress Report
Life Cycle Assessment (LCA) Report	<u>Section 3.2.3.3</u>	First LCA Report Submittal with Schematic Design Submittal. Final LCA Report Submittal with Final Design Document Submittal.
Final Commissioning Report	<u>Section 3.11.9.7.2(g)</u>	Due at the end of commissioning activities.

Table 2.8.2: Construction Period Reporting Requirements

2.8.3 Operating Period

Operating Period Reporting Requirements		
Report	Technical Requirements Section	Reporting Frequency
Monthly O&M Report	<u>Section 4.1.6.2</u>	Monthly commencing at the Facility Final Acceptance Date for the first Facility to achieve Facility Final Acceptance and continuing until the end of Term
Annual O&M Report	<u>Section 4.1.6.3</u>	Yearly commencing at the Facility Final Acceptance Date for the first Facility to achieve Facility Final Acceptance and continuing until the end of Term
Energy Analysis Report	<u>Appendix 17</u> (Energy Utilities Management) of the Agreement	Due with the Annual O&M Report
Asset Inventory Report	<u>Section 4.1.6.5</u>	Due with the Annual O&M Report
Elevator Wait Time Report	<u>Section 4.4.6.1.1(k)</u>	Due with the Annual O&M Report
Quality Inspection Report	<u>Section 4.1.6.6</u>	Due with the Monthly O&M Report
Annual Water Consumption Analysis Report	<u>Section 4.1.6.4</u>	Due with the Annual O&M Report
Annual Handback Evaluation Report	<u>Section 5.4</u>	Yearly commencing four (4) years prior to Termination Date

Table 2.8.3: Operating Period Reporting Requirements

VOLUME II – TECHNICAL REQUIREMENTS

SECTION 3 – DESIGN AND CONSTRUCTION REQUIREMENTS

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SECTION 3 DESIGN AND CONSTRUCTION REQUIREMENTS

3.1 GENERAL

3.1.1 Owner's Project Goals

Developer shall design the Facilities in a manner that addresses the goals of the Owner. Each Schematic Design Work Submittal shall include a design intent narrative, submitted in accordance with Appendix 4-B (Facilities Submittals) to the Technical Requirements, describing the manner in which the design addresses the applicable goals of the Owner.

3.1.1.1 The Owner's Project goals are as follows:

- (a) Development that takes advantage of investments in Existing Infrastructure and provides best overall value for the lifecycle of the Facilities;
- (b) Creative mixed-use Facilities in a compact fabric that supports a pedestrian friendly environment;
- (c) Facilities that create a unique, inspiring and dynamic living and learning environment, providing opportunities for interdisciplinary scholarly activities;
- (d) A welcoming "front door to the campus" that captures the spirit of UC Merced's teaching and research mission;
- (e) An open space network and public realm that enhances the UC Merced environment;
- (f) Sustainable, environmentally appropriate Facilities that are consistent with the Owner's goal of achieving Triple Net Zero status at UC Merced;
- (g) Facilities that have built-in flexibility and adaptability to accommodate future needs;
- (h) A Project Master Plan that integrates facilities on the Existing Campus with new Facilities in a seamless manner, promoting a sense of unified UC Merced campus, through complementary massing, landscaping, materials and campus-wide color and texture palette;
- (i) Buildings with open and inviting ground floors and lobbies;
- (j) Buildings that encourage social interaction through incorporation of a mix of gathering spaces that balance large spaces with intimate colloquial meeting spaces and study / reading spaces;

- (k) Building designs that emphasize the use of daylight and include interior themes and textures that complement the exterior design to create a sense of continuity and connectivity between Facilities and the exterior campus spaces;
- (l) A UC Merced campus lay-out that prioritizes User safety; and
- (m) A UC Merced campus and Facilities that promote quality campus life through social interaction, healthy lifestyles and integrated access to sports and exercise.

3.1.1.2 Developer shall furnish the design, engineering, coordination and construction of all aspects of the Facilities necessary to complete the D&C Work for the development of a complete and fully functional campus, all in compliance with the Contract Documents.

3.1.2 Design Life

3.1.2.1 Developer shall design, construct, maintain and renew the Project to ensure that the following components and Elements of the Facilities and Infrastructure have the design life specified in Section 3.1.2.2 of the Technical Requirements:

- (a) foundations and structural frame, including lateral resisting systems;
- (b) exterior cladding systems, including opaque areas, insulation, glazing systems, doors and frames, and all exterior appurtenances, such as sunshading devices and trim; and
- (c) interior construction, including permanent partitions, interior doors and frames, interior glazing, ceiling systems (except for acoustical panels), stairs, elevator cabs and hoistways, piping for fire protection, plumbing and HVAC, ductwork, switchgear, IT Infrastructure, and all non-structural support framing for such interior construction.

3.1.2.2 The required design lives for components and Elements of the Facilities and Infrastructure specified in Section 3.1.2.1 of the Technical Requirements are as follows:

- (a) at least 75 years for Facilities that include Academic Areas, Student Life Areas (except Student Life: Early Childhood Areas) and Campus Operations Areas, subject to the exceptions identified in Section 3.1.2.3 of the Technical Requirements for mixed use Facilities;
- (b) at least 60 years for Facilities that include Housing Areas;
- (c) at least 35 years for Student Life: Early Childhood Areas;

- (d) at least 75 years for below grade Infrastructure, including valves; and
- (e) at least 35 years for Non-Assignable Spaces: Interior: Utility Structure Areas.

3.1.2.3 The following specific Academic Areas and Student Life Areas may be included within mixed use Buildings with 60 year design lives, provided the Building is comprised predominantly of Housing Areas and the Academic Areas and Student Life Areas combined do not make up more than 25% of the total ASF of the Building:

- (a) Academic: Classroom: Classroom 4: 30 Seat Areas, together with any Academic: Colloquy Spaces Areas associated with such Academic: Classroom Areas;
- (b) Academic: Classroom: Classroom 5: 24 seat Seminar Room Areas, together with any Academic: Colloquy Space Areas associated with such Academic: Classroom Areas;
- (c) Academic: Classroom: Storage: General Areas;
- (d) Academic: Office Areas;
- (e) Student Life: Student Activity: Retail Areas;
- (f) Student Life: Student Activity: Clubs & Organizations Areas;
- (g) Student Life: Student Activity: Administration;
- (h) Student Life: Student Activity: Social and Entertainment Areas;
- (i) Student Life: Student Activity: Support & Maintenance Areas;
- (j) Student Life: Wellness Center Areas; and
- (k) Student Life: Enrollment Center Areas.

3.1.2.4 Pavement base and sub-base and bridge super structure and sub-structure shall have the design lives specified in Section 3.4.14.3 (a)(ii) and Section 3.4.14.1.1(f) of the Technical Requirements, respectively.

3.1.3 Geotechnical Recommendations

Developer shall engage a Certified Engineering Geologist or Licensed Geotechnical Engineer who shall assess detailed seismic, geologic, and soil conditions at the Project Site. The study shall include an evaluation of liquefaction potential, slope stability, landslide potential, expansive and compressible soils, and other structural characteristics and shall identify specific geotechnical recommendations designed to mitigate for the site hazards. The geotechnical recommendations will be followed during the design and construction of the Project.

3.1.4 Assigned Square Footage (ASF)

All ASF shall be calculated in accordance with the University of California Facilities Inventory Guide (FIG) Appendix C at http://www.ucop.edu/capital-planning/_files/documents/FACILITIES%20INVENTORY%20GUIDE/Appendix%20C.%20Building%20Area%20Overview.pdf.

3.2 SUSTAINABILITY

3.2.1 Construction Period Requirements

Developer shall comply with the construction waste management requirements set forth in Section 2.4.12 (Waste Management) of the Technical Requirements.

3.2.2 General Building Requirements

Developer shall provide integrated locations for waste, recycling and composting throughout the Facilities. Size and spacing shall be appropriate for the nature and intended use of the space. Each waste, recycling and composting location shall be appropriately identified and each chute or bin shall be labeled appropriately in accordance with Section 3.7.9.5 (Trash Chute Systems) of the Technical Requirements. Recycling and trash containers may not be placed within fire rated corridors. If placed in a hallway or egress path that is not fire rated, alcoves for the containers must be provided that do not encroach into the hallway or space.

3.2.3 Life Cycle Assessment Requirements

3.2.3.1 The following definitions of carbon emissions classifications used by the ACUPCC and The Climate Registry (<http://www.theclimateregistry.org>) shall apply to this Section 3.2.3:

- (a) Indirect GHG Emissions: emissions that are a consequence of the activities of the reporting entity (the Owner), but occur at sources owned or controlled by another entity.
- (b) Scope 1: Direct emissions from owned or controlled sources.
- (c) Scope 2: Indirect GHG emissions from consumption of purchased electricity, steam, hot water, chilled water or combined heating and power.
- (d) Scope 3: Other indirect emissions, such as the extraction and production of purchased materials (new buildings) and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity (both student and faculty commuting and business travel), electricity-related activities (e.g. T&D losses) not covered in Scope 2, including outsourced activities, waste disposal, etc.

3.2.3.2 Carbon Accounting: Developer shall use one of the following building life cycle assessment tools (the “**LCA Tool**”), or their equivalent, to provide total GHG emissions as well as to document other environmental impacts of the building materials and their construction:

- (a) Athena;
- (b) Tally; or
- (c) GaBi.

3.2.3.3 Developer shall provide LCA reports (the “**LCA Report**”) to the Owner with the following Work Submittals during the Construction Period:

- (a) Schematic Design Work Submittals; and
- (b) Final Design Documents Submittal.

3.2.3.4 The LCA Report shall include the following sources of Scope 3 carbon emissions:

- (a) extraction and production of building materials;
- (b) systems; and
- (c) equipment.

3.2.3.5 As part of the Schematic Design Work Submittals, Developer shall utilize the LCA Tool to compare the embodied carbon of the Project design to a baseline reference building of comparable size, function, orientation, and operating energy. The service life of the baseline and proposed buildings must be the same and the data sets must be compliant with ISO 14044. Solutions shall be developed to a level suitable to facilitate the comparative analysis of carbon performance and included in the LCA Report.

3.2.3.6 The LCA Report submitted with the Final Design Documents shall incorporate an updated LCA Tool calculation for the Project consistent with the final structural design for each Facility.

3.2.3.7 Developer shall provide the Owner with an annual report of the total carbon emissions (tonnes) generated by the Construction Work, determined in accordance with a defined methodology consistent with Best Management Practices..

3.2.4 Water Neutrality

3.2.4.1 Water Footprint

During the D&C Period, Developer shall determine the Project’s water footprint by determining the Project’s consumption of Green Water and Blue Water, and the creation of Grey Water and Black Water.

3.2.4.2 Reclaimed Water

As set forth in Section 3.5.6.3 (Purple Pipe System) of the Technical Requirements, Developer shall design and install a reclaimed water supply system for irrigation that is separate from the Existing Purple Pipe System.

3.2.5 Solar Ready Requirements

3.2.5.1 Developer shall include the following items with its roof plan for Owner's review in accordance with Section 2.6 (Work Submittal Review Process) of the Technical Requirements:

- (a) solar zone: area allocated to future renewable energy systems, number of potential panels, and their projected output in annual kWh;
- (b) roof penetrations for electrical points of interconnection to solar array;
- (c) roof location designated for conductor isolation/shut off switch for firefighting;
- (d) a reference note locating the future inverters, supporting equipment and electrical meter associated with the renewable system;
- (e) all roof features on roof plan (and relevant elevations), including roof vents, intakes, tie-downs, railings, drainage features, screen walls, exposed MEP systems (i.e. ducts, pipes, pads); and
- (f) switchgear panels in all Buildings shall include a switch within the breaker box designated for future rooftop solar zone.

3.2.5.2 Developer shall design roof or armature to support solar energy generation system as an integral component of overall Building design and composition, roof plan and rooftop mechanical systems and screening.

3.2.5.3 To the greatest extent possible, roof penetrations, equipment and penthouses shall be consolidated and grouped together to maximize free area for the Solar Zone.

3.2.5.4 Wind loads on future rooftop solar equipment shall be analyzed in accordance with ASCE 7-10, MRI of 100 years and shall be designed to ensure the structure is sufficient to withstand calculated forces with panels installed.

3.2.6 LEED® Certification Requirements

3.2.6.1 Developer shall obtain, at a minimum, United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Building Design and Construction (BD+C) 2009 Green Building Rating System (the "**LEED**

Rating System”) Gold certification (“LEED Gold Certification”) for each Building in accordance with the following:

- (a) Developer shall determine the number of registrations required to facilitate LEED Gold Certification of all Buildings and, within sixty (60) days of the Effective Date, register each Building with the USGBC under the LEED Rating System;
- (b) If, at any time after Developer obtains registration with the USGBC in accordance with Section 3.2.6.1(a), the requirements to achieve LEED Gold Certification under the LEED Rating System change, and Developer is required to comply with such change in order to achieve LEED Gold Certification of the Buildings, then Developer shall forthwith notify Owner of such change and such change will be implemented as an Owner Change in accordance with Section 11.1 (Owner Changes) of the Agreement;
- (c) Developer shall obtain, for each Building, all prerequisites and credits marked as mandatory prerequisites and credits in Table 3.2.6.1(c) (“Mandatory Prerequisites and Credits”):

Tag	Credit Title	Mandatory Prerequisites and Credits
SSp1	Construction Activity Pollution Prevention	X
SSc1	Site Selection	
SSc2	Development Density and Community Connectivity	
SSc3	Brownfield Development	
SSc4.1	Alternative Transportation – Public Transportation Access	6
SSc4.2	Alternative Transportation –Bicycle Storage and Changing Room	1
SSc4.3	Alternative Transportation – Low Emitting Vehicles	3
SSc4.4	Alternative Transportation – Parking Capacity	2
SSc5.1	Site Development – Protect or Restore Habitat	1
SSc5.2	Site Development – Maximize Open Space	1
SSc6.1	Stormwater Design – Quantity Control	1
SSc6.2	Stormwater Design – Quality Control	1
SSc7.1	Heat Island Effect - Nonroof	1
SSc7.1	Heat Island Effect - Roof	1
SSc8	Light Pollution Reduction	1
WEp1	Water Use Reduction, 20%	X
WEc1	Water Efficient Landscaping	2
WEc2	Innovative Waste Water Technologies	
WEc3	Water Use Reduction, 40%	4
EAp1	Fundamental Commissioning of Building Energy Systems	X
EAp2	Minimum Energy Performance	X
EAp3	Fundamental Refrigerant Management	X
EAc1	Optimize Energy Performance	6
EAc2	On-Site Renewable Energy	
EAc3	Enhanced Commissioning	X

Tag	Credit Title	Mandatory Prerequisites and Credits
EAc4	Enhanced Refrigerant Management	2
EAc5	Measurement & Verification	3
EAc6	Green Power	
MRp1	Recycling Storage and Collection	X
MRc1	Building Reuse	
MRc2	Construction Waste Management	2
MRc3	Material Reuse	
MRc4	Recycled Content	2
MRc5	Regional Materials	1
MRc6	Rapidly Renewable Materials	
MRc7	Certified Wood	X
IEQp1	Minimum IAQ Performance	X
IEQp2	ETS Control	X
IEQc1	Outdoor Air Delivery Monitoring	
IEQc2	Increased Ventilation	1
IEQc3.1	Construction Indoor Air Quality Management Plan – During Construction	1
IEQc3.2	Construction Indoor Air Quality Management Plan-Before Occupancy	1
IEQc4.1	Low-Emitting Materials – Adhesives and Sealants	1
IEQc4.2	Low-Emitting Materials – Paints and Coatings	1
IEQc4.3	Low-Emitting Materials – Flooring Systems	1
IEQc4.4	Low-Emitting Materials – Wood and Agrifiber Products	1
IEQc5	Indoor Chemical and Pollutant Source Control	
IEQc6.1	Controllability of Systems -Lighting	
IEQc6.2	Controllability of Systems -Thermal Comfort	
IEQc7.1	Thermal Comfort, Design	
IEQc7.2	Thermal Comfort, Verification	
IEQc8.1	Daylight and Views-Daylight	
IEQc8.2	Daylight and Views-Views	

Table 3.2.6.1(c): Mandatory Prerequisites and Credits

- (d) Developer may in its discretion determine which additional LEED credits and points to pursue, except that Developer shall not pursue, or rely on for purposes of achieving LEED Gold Certification for any Building, any:
- (i) Innovation & Design credits that require investment by the Owner in future equipment or procurement processes that may increase Owner's costs of operation, including Green Housekeeping, Greenguard Furniture, or Green Education; or
 - (ii) credits relating to the Owner's existing solar array and any other photovoltaic system or solar energy sources located on the Owner's land, including the Project Site; and
- (e) Developer shall not compromise the Owner's LEED status or credits in respect of the Existing Campus and shall ensure that the Project facilitates Owner's continued compliance with LEED on the Existing Campus.

3.3 PROGRAM ELEMENTS AND AREA DATA SHEETS

3.3.1 Certain specific design and construction requirements for each Area Type are included in the Area Data Sheet for that Area Type. The Area Data Sheets are set forth in Appendix 6 (Area Data Sheets) of the Technical Requirements.

3.3.2 Each Area Type and its corresponding Area Data Sheet number are identified in Appendix 1-B (Program Elements) of the Technical Requirements.

3.3.2.1 Developer shall design and construct the Facilities in accordance with Appendix 1-B (Program Elements), the Area Data Sheets and Section 3 (Design and Construction Requirements) of the Technical Requirements, which together set forth the design and construction requirements for the Facilities. Developer shall design and construct the Buildings to include, at a minimum, the ASF for each Area as specified in Appendix 1-B (Program Elements). For Nonassignable Spaces: Interior and Nonassignable Spaces: Exterior Areas, Developer shall design and construct the Area to include, at a minimum the square footage or quantity of units specified in Appendix 1-B (Program Elements). In the event of any conflict, ambiguity or inconsistency between Appendix 1-B (Program Elements), the Area Data Sheets and Section 3 of the Technical Requirements, the more stringent requirement shall prevail. Developer shall design and construct any space or aspect of the Facilities not addressed in the Area Data Sheets in accordance with Section 3 of the Technical Requirements, Best Management Practice and applicable Law.

3.3.2.2 Developer shall design and construct each Area to be fit for its applicable intended use as indicated in the "Intended Use" column of Appendix 1-B (Program Elements) of the Technical Requirements and for the function indicated in the "Function:" box of the applicable Area Data Sheet.

3.4 SITE DESIGN REQUIREMENTS

3.4.1 Project Master Plan

3.4.1.1 General Requirements

3.4.1.1.1 Prior to NTP 1 as contemplated in Section 4.6.3 of the Agreement, Developer shall submit to the Owner for review a master plan for the Project Site consistent with the master plan included with Developer's Proposal (the "**Project Master Plan**") in accordance with Section 2.6 (Work Submittal Review Process) of the Technical Requirements. The Project Master Plan shall include all Facilities, and all "Master Plan Only" spaces identified in Appendix 1-A (Program Summary) of the Technical Requirements, together with any additional exterior spaces to be included in the Project Master Plan as indicated in this Section 3.4.1 ("**Master Plan Only Spaces**"). For clarity, Developer is not required to design and construct as part of the Project the Master Plan Only Spaces.

3.4.1.1.2 Developer shall resubmit the Project Master Plan to the Owner for review and approval any time D&C Work permits and approvals require a change in the previously approved Project Master Plan.

3.4.1.1.3 Developer shall submit a final Project Master Plan with the Final Design Documents, which shall reflect any changes made to Project Master Plan submitted to Owner in accordance with the requirements set forth in Sections 3.4.1.1.1 and 3.4.1.1.2.

3.4.1.2 Master Plan Only Spaces Specific Requirements

3.4.1.2.1 Developer shall integrate Master Plan Only Spaces within the Project Site in accordance with the requirements of this Section 3.4.1.2.

3.4.1.2.2 Where Master Plan Only Spaces will be accommodated through expansion of Facilities, Developer shall:

- (a) design all Infrastructure and Facilities Systems with adequate capacity to accommodate Master Plan Only Spaces without replacement or modification;
- (b) design and construct Nonassignable Spaces Areas identified in Appendix 1-B (Program Elements) to support both the relevant Facility and the Master Plan Only Spaces associated with it; and
- (c) ensure Master Plan Only Spaces connect seamlessly with the Facilities and the Project Site without remodel or renovation of Facilities or Infrastructure.

3.4.1.2.3 Classroom and Living Learning Space

Developer shall include 11,000 ASF of classroom space in the Project Master Plan as Master Plan Only Space. This classroom Master Plan Only Space may be included as one or more expansions to Buildings constructed as part of the Project, or may be planned as a separate building.

3.4.1.2.4 Black Box Theater

Developer shall include a 4,500 ASF Black Box Theater in the Project Master Plan as Master Plan Only Space. The Black Box Theater shall include auditorium, green room, changing rooms, cast restrooms and associated support space, and be located adjacent to the Student Life: Student Activity: Conference Center: Ballroom with direct access to the auditorium from the Student Life: Student Activity: Conference Center: Lobby.

3.4.1.2.5 Residence Hall

Developer shall include 22,230 ASF of Residence Hall, including 117 beds and associated bathroom, recreation and study rooms, in the Project Master Plan as Master Plan Only Space.

3.4.1.2.6 Chancellor's Residence

Developer shall include the Chancellor's Residence, comprising 6,500 ASF of residence and 3 secure car parking spaces in the Project Master Plan as Master Plan Only Space. This Chancellor's Residence Master Plan Only Space may be included as an expansion

to a Building constructed as part of the Project, or may be planned as a separate building.

3.4.1.2.7 Welcome Center

Developer shall include a 12,070 ASF Welcome Center and associated parking in the Project Master Plan as Master Plan Only Space. The Welcome Center shall be located near a main entrance into the UC Merced campus. The Welcome Center Master Plan Only Space may be included as an expansion to a Building constructed as part of the Project, or may be planned as a separate building. The Welcome Center Master Plan Only Space shall be located within 100 feet of a minimum of 20 parking spaces, or the Project Master Plan shall include area suitable for such parking.

3.4.1.2.8 Arena

Developer shall include an 85,020 ASF arena and associated parking in the Project Master Plan as Master Plan Only Space. The primary entrance of the arena shall be within 300 feet of 300 parking spaces and within 1,500 feet of 1,000 parking spaces. In addition, the Project Master Plan shall include planning for location of 300 additional parking spaces within 1,500 feet of the arena.

3.4.1.2.9 Fire Operations Facility

Developer shall include a 9,400 ASF fire operations facility in the Project Master Plan as Master Plan Only Space. The fire operations facility shall include all necessary exterior space for a functional four bay fire station, including turning, staging and washdown areas. The fire station shall be configured as a drive through station. The fire operations facility shall be located adjacent to the Campus Operations: Public Safety Facility and to primary circulation to allow for rapid deployment of emergency response.

3.4.1.2.10 Academic: Research: Core Lab: Research Laboratory 15: Greenhouse

The Greenhouse expansion shall be a single contiguous area located adjacent to the 20,000 SF open air growing area described in Section 3.7.10.10.2 of the Technical Requirements and shall include 17,500 ASF of Greenhouse expansion in the Project Master Plan as Master Plan Only Space: 2,500 ASF of headhouse and similar functions and 15,000 ASF of plant growth greenhouses. The planned expansion area shall be located such that the plant growth portions are unshaded at all times.

3.4.1.2.11 Student Life Enrollment Center Expansion

Developer shall include 4,240 ASF of Student Life: Student Activity expansion and 7,960 ASF of Student Life: Enrollment Center expansion, comprising office, meeting and administrative type space, in the Project Master Plan. Each expansion area shall be a single contiguous area suitable for expansion as a single suite or program.

3.4.1.2.12 Chilled Water System TES Tank and Pump House

Developer shall include in the Project Master Plan as Master Plan Only Space a 2,000,000 gallon TES tank and associated pump house in accordance with the following requirements:

- (a) Placement of the TES tank and pump house on the Existing Campus is limited to the “Expansion Area” identified in Appendix 4-D (Central Plant Expansion Site Map) of the Agreement.
- (b) If the TES tank and pump house is placed on the Project Site, it shall be located within an eight hundred (800) foot radius of the existing Central Plant and be placed in spaces that meet the following requirements:
 - (i) Nonassignable Spaces: Exterior Areas with landscaping designated as LS3 (Perimeter Landscaping) in accordance with the Area Data Sheets and Section 3.4.13.1 (General Landscaping Requirements) of the Technical Requirements;
 - (ii) Nonassignable Spaces: Exterior Areas that are not adjacent to public gathering areas including Nonassignable Spaces: Exterior: Plaza, Walkway or Bicycle Path Areas;
 - (iii) Nonassignable Spaces: Exterior Areas that are not within the sightlines of Users using public gathering areas including Nonassignable Spaces: Exterior: Plaza, Walkway or Bicycle Path areas; and
 - (iv) Nonassignable Spaces: Exterior Areas that do not adversely impact the future placement and construction of Master Plan Only Spaces.
- (c) Developer shall submit with its Project Master Plan submittal a conceptual chilled water system diagram identifying the future TES tank and pump house location and including a narrative explanation of the operation and integration of the future TES tank and pump house with the existing Central Plant chilled water system.

3.4.1.2.13 Intentionally deleted

3.4.1.2.14 Intentionally deleted

3.4.1.2.15 Graduate Housing Apartments

Developer shall include 65,700 ASF of graduate housing apartments in the Project Master Plan as Master Plan Only Space to accommodate 200 graduate student beds.

3.4.1.2.16 Water Storage Tank

If an additional water storage tank is not needed pursuant to Section 3.5.6.2(g) of the Technical Requirements, then Developer shall include in the Project Master Plan, as a Master Plan Only Space, the location of an additional water storage tank of similar size and capacity to the existing water storage tank.

3.4.1.2.17 Public Safety

Developer shall include 19,020 ASF of public safety and environmental health and safety space, together with a secure parking area for 50 parking stalls, in the Project Master Plan as Master Plan Only Space.

3.4.1.2.18 Student Life: Athletics

- (a) Developer shall include a 10,340 ASF space adjacent to the Student Life: Athletics: Competition Field and Student Life: Athletics: Competition Pool Areas in the Project Master Plan as Master Plan Only Space. The Master Plan Only Space shall include team and public locker facilities, training rooms, and concessions spaces.
- (b) Developer shall include in the Project Master Plan as Master Plan Only Spaces:
 - (i) a minimum 16,000 square foot location for two (2) Courts: Volleyball;
 - (ii) a minimum 17,136 square foot location for two (2) Courts: Basketball; and
 - (iii) a minimum 7,600 square foot location for one (1) Court: Tennis.

3.4.2 Utilization or Alteration of Passive and Active Open Spaces

3.4.2.1 Active Open Space

3.4.2.1.1 Developer shall not construct Facilities within Active Open Spaces except Outdoor Facilities, or a Building accommodating Student Life: Athletics Areas, together with associated Infrastructure.

3.4.2.1.2 Developer shall ensure that the South Bowl, identified in Appendix 4-A (Project Site Map) of the Agreement, remains an Active Open Space available for safe access and use by Users during the Construction Period in the same condition as it exists as of the Effective Date until such time as Occupancy Readiness has been achieved for Nonassignable Spaces: Exterior: Fields: Competition Areas.

3.4.2.1.3 Developer shall move and replant Protected Trees within any Active Open Space disturbed by the implementation of the Project Master Plan, or, in the event that

such trees cannot be replanted, replace the trees with a similar cultivar of approximately the same age and character, as approved by the Owner.

3.4.2.2 Passive Open Space

3.4.2.2.1 All Passive Open Spaces shall remain as passive open areas and Developer shall not construct any Buildings or Infrastructure within any Passive Open Space. Developer may construct and install pathways and other exterior amenities within Passive Open Spaces in accordance with Section 3.4.5 (Exterior Amenities) of the Technical Requirements, provided that Developer obtains the Owner's prior approval in accordance with Section 3.4.2.3 (Review Procedure for the Alteration of Passive Open Space) of the Technical Requirements.

3.4.2.2.2 Developer shall move and replant Protected Trees within any Passive Open Space disturbed by the implementation of the Project Master Plan, or, in the event that such trees cannot be replanted, replace the trees with a similar cultivar of approximately the same age and character, as approved by the Owner.

3.4.2.3 Review Procedure for the Alteration of Passive Open Space

3.4.2.3.1 Developer shall not alter Passive Open Spaces except with the Owner's prior approval obtained in accordance with this Section 3.4.2.3. The Owner's approval or rejection of Developer proposed changes to Passive Open Spaces shall be made in Owner's sole discretion.

3.4.2.3.2 Developer proposed changes to any Passive Open Spaces shall be clearly shown in the initial submittal of the Project Master Plan made in accordance with Section 3.4.1.1.1 of the Technical Requirements.

3.4.2.3.3 Developer shall submit to the Owner, along with the Project Master Plan, a request to implement changes to Passive Open Spaces and shall include:

- (a) A location map clearly showing the Passive Open Space(s) to be altered;
- (b) A description of the changes proposed to the Passive Open Space, and how the changes will preserve and are aligned with the passive open nature of the Passive Open Space;
- (c) A description of the nature and scope of Work required to implement the changes;
- (d) A narrative explaining how habitats within the Passive Open Space will be replaced and where equivalent replacement habitats will be located;
- (e) A narrative explaining whether Protected Trees will remain in place or be moved, and if Protected Trees will be moved, explaining where the Protected Trees will be located;

- (f) In the event that such Protected Trees cannot be replanted, a description of the replacement trees, ensuring that similar cultivars of the approximately the same age as the trees being replaced are used; and
- (g) In the event the proposed alteration of an existing Passive Open Space impacts Donor Areas, a narrative explaining the reason for such impact and describing where the Donor Areas will be located and reestablished with equal or better size, prominence and views.

3.4.2.3.4 Developer shall obtain the Owner's approval for any Developer proposed changes to Passive Open Space in accordance with this Section 3.4.2.3 prior to the commencement of any Construction Work within such Passive Open Space.

3.4.2.3.5 If Donor Areas are impacted by Developer's proposed changes to Passive Open Space, Developer shall submit a request for approval in accordance with this Section 3.4.2.3 no later than 90 days prior to the target date for commencement of any Work within such Passive Open Area.

3.4.2.3.6 If Protected Trees are impacted by Developer's proposed changes to Passive Open Space, Developer shall submit a request for approval in accordance with this Section 3.4.2.3 no later than 30 days prior to the target date for commencement of any Work within such Passive Open Area.

3.4.2.3.7 Owner shall review and provide its rejection, comments, or approval prior to the expiry of the time periods set forth in Sections 3.4.2.3.5 and 3.4.2.3.6.

3.4.2.3.8 Developer is strictly prohibited from contacting any third parties regarding items or features within a Passive Open Space that are donated by third parties.

3.4.3 Utilization of Existing Campus Spaces and Area South of Bellevue Road

3.4.3.1 Existing Parking Lots

3.4.3.1.1 Appendix 8 (Existing Parking Lots) of the Technical Requirements identifies parking lots within the Project Site that, as of the Effective Date, are used by Users in connection with the Existing Campus operations ("**Existing Parking Lots**"). Developer shall ensure that each Existing Parking Lot, and every parking space within the lot, remains available for safe access and use by Users during the Construction Period, until such time as Developer:

- (a) in accordance with the Project Schedule and Project Master Plan, proceeds to make use of the Existing Parking Lot for D&C Work; and
- (b) has replacement parking area(s), which may be temporary parking areas (for use during the Construction Period only), ready for use by Users and that meet the following requirements:

- (i) are within the Project Site;
- (ii) include at least as many parking spaces as the Existing Parking Lot being replaced;
- (iii) provide for safe access and use by Users; and
- (iv) are built in accordance with the Nonassignable Spaces: Exterior: Parking: Offstreet – Peripheral Area requirements, with the exception of the requirement for landscaping if the space is temporary (for use during the Construction Period only).

3.4.3.1.2 If the replacement parking area is temporary (for use during the Construction Period only), the area shall be developed in accordance with the Project Master Plan once its use for temporary parking has concluded.

3.4.3.1.3 If D&C Work requires the removal of Existing Parking Lot spaces that are ADA compliant, Developer shall replace such parking with parking spaces that are ADA compliant and located along the DSA Site Accessible Route Plan identified in Appendix 8 (Existing Parking Lots) of the Technical Requirements.

3.4.3.2 Existing ECEC Building and Site

Developer shall, accordance with Section 3.7.18 (Specific Student Life: Early Childhood Area Requirements), design and construct a 3060 ASF addition to the Existing ECEC Building, as well as a Nonassignable Spaces: Exterior: Early Childhood Outdoor Play Area, to accommodate the Student Life: Early Childhood Areas at the existing ECEC Building and Site area identified on the Project Site Map.

3.4.3.3 Academic Office Annex Site

Developer may utilize the Academic Office Annex Site identified on the Project Site Map as either a building site or as a laydown area during the Construction Period. If Developer utilizes the Academic Office Annex Site, Developer shall remove and demolish existing trailers and structures and containers. If Developer does not utilize the Academic Office Annex Site, Developer has no obligation to remove and demolish existing trailers and structures on the site.

3.4.3.4 Replacement Accommodation and Relocation Requirements

3.4.3.4.1 If Developer elects to use the Academic Office Annex Site, as identified on the Project Site Map, Developer shall provide fully operational and permanent replacement accommodation on the Project Site for the programs and functions accommodated at the Academic Office Annex Site, prior to taking the Academic Office Annex Site out of service.

3.4.3.4.2 Replacement accommodation and relocation activities and process require prior coordination with and approval of the Owner.

3.4.3.5 Area South of Bellevue Road

Developer may utilize that portion of the Project Site that is south of Bellevue Road only for Nonassignable Spaces: Exterior: Parking: Offstreet - Peripheral Areas and Nonassignable Spaces: Exterior: Parking: Offstreet – Central Areas, except that, prior to Occupancy Readiness of such Areas, Developer may utilize that portion of the Project Site that is south of Bellevue Road for temporary uses relating to performance of Construction Work.

3.4.4 Future Expansion

Developer shall design the Infrastructure so as not to not preclude future expansion to a campus of 25,000 students. The roadway network and Utilities within the Project Site shall be located to avoid disruption to Campus Activities and the need for Utility relocation when a future expansion occurs. For clarity, except as otherwise provided in the Contract Documents or required by applicable Law, Developer is not required, as part of the Project, to design the Facilities with an ASF beyond that stated in Appendix 1-B (Program Elements) of the Technical Requirements.

3.4.5 Exterior Amenities

3.4.5.1 Intentionally deleted

3.4.5.2 Pedestrian Amenities

Developer shall design and construct plaza and walkway Areas and landscaping improvements in accordance with the following requirements:

- (a) Provide a minimum of two (2) pedestrian amenities for every 1,000 square feet of Nonassignable Spaces: Exterior: Plaza Area and every 500 linear feet of Nonassignable Spaces: Exterior: Walkway Area. Pedestrian amenities may include:
 - (i) performance area;
 - (ii) informational kiosks; or
 - (iii) any other amenity that enhances the public realm and promotes social interaction and collaboration;
- (b) Intentionally deleted.
- (c) The Owner will provide seating amenities in the form of benches, tables, chairs and seating along planting areas in Nonassignable Spaces: Exterior: Plaza Areas. Developer shall design, in consultation with the Owner, and construct the specified Areas to accommodate the Owner-provided seating amenities; and
- (d) In addition to the requirements set forth in Section 3.7.9.10, Table 3.8.2.4.2 (Site Plumbing) and in the Area Data Sheets

regarding drinking fountains and water bottle filling stations, Developer shall locate a drinking fountain and a water bottle filling station in at least one location per Building. Developer may consider placing more such amenities throughout the campus at a higher frequency than described herein.

3.4.5.3 Removable Bollards

All removable bollards shall be consistent in style with Existing Campus bollards and shall meet the following requirements:

- (a) conform to the requirements of the Designated Campus Fire Marshal;
- (b) have a maximum weight of 50 pounds;
- (c) be rated K4 in accordance with ASTM F2656-07K for removable bollards;
- (d) be powder coated;
- (e) have a mechanism for locking and shall be steel pipe bollards with the following specifications: steel pipe with domed cap, height shall be 36 inches, internal diameter shall be six (6) inches, and the mount shall be embedded;
- (f) The finish shall be Tiger Drylac U.S.A., INC., Drylac: 49/72530, Color: Ral 7023 (SM GL Tribo), Batch # CAL 11944GG; and
- (g) have slotted galvanized caps to rotate open on a buried hinge. Cap to rotate to be flush with finish grade when bollard is removed. Slots in cap to be one half (½)-inch maximum opening in direction of path of travel. Provide breakaway padlock for each bollard. Padlocks shall be keyed alike, and keyed the same as the Existing Campus removable bollards.

3.4.5.4 Stationary Bollards

All fixed bollards shall be consistent in style with Existing Campus bollards and shall meet the following requirements:

- (a) be stainless steel;
- (b) have the following specifications: steel pipe with domed end caps, height shall be thirty-six (36) inches, internal diameter shall be six (6) inches, outer diameter shall be 6.626 inches; and
- (c) product basis of design shall be CBR-PW-6-E-DT, by Creative Pipe or product of equal or better quality and specifications.

3.4.5.5 Tree Grates

All tree grates shall be consistent in appearance with those installed within the Existing Campus and shall be able to withstand one thousand (1,000) pounds of weight and be ADA compliant with cast-in anchor frames as required for installation. If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel. All tree grates shall have a standard foundry cast finish. Tree grates shall be utilized in all publicly accessible outdoor spaces that have paved surfaces.

3.4.5.6 Exterior Mass Notification System

Developer shall install a Project Site wide exterior mass notification system in accordance with Section 3.8.8 (Mass Notification Requirements) of the Technical Requirements. The system shall include exterior speakers with sufficient volume and clarity to ensure fully audible notification with high level of speech intelligibility at all points on the Project Site.

3.4.5.7 Duress Alarm System

Developer shall install a Project Site-wide duress alarm system (the “**Duress Alarm System**”) in accordance with the following requirements:

- (a) Duress Alarm System stations shall match Existing Campus blue light stations in look and function.
- (b) Duress Alarm System stations shall have one red button designated as “PUSH FOR HELP” and one black button designated as “INFO.” Both buttons shall connect the user to the Campus Police.
- (c) Developer shall install a communication device system that connects the Duress Alarm System to the Owner’s PBX system for dial-up connection.
- (d) Duress Alarm System stations shall not include mass notification capabilities.
- (e) Developer shall provide 35 Duress Alarm System stations to be placed in central areas and along pathways with specific locations as determined by the Owner during the design review process.
- (f) Duress Alarm System stations shall include alarm and two way voice communications to Campus Dispatch. Alarm signal shall be addressable to the individual actuating station.
- (g) Duress Alarm System infrastructure shall include all power, data, and construction necessary to provide a fully functional system.

3.4.5.8 Waste Receptacles

Developer shall install exterior waste receptacles throughout Nonassignable Spaces: Exterior Areas where pedestrian or bicycle traffic are expected, and in accordance with the Project Master Plan. Such exterior waste receptacles shall comply with the following requirements:

- (a) the maximum distance between exterior waste receptacle locations shall be two-hundred (200) lineal feet;
- (b) in addition to the requirements set forth in Section 3.4.5.8(a), exterior waste receptacle locations shall be located so that at least one (1) such location is visible within a one-hundred (100) foot radius;
- (c) every exterior waste receptacle location shall have trash, compost and recycling receptacles;
- (d) the basis of design for waste receptacles shall be the following, or product of equal or better quality and specifications: modular all in one, Three Bin Electric Powered Trash, Recycling and Greenwaste Collection System with Optional Power Adaptor: "Big Belly" by Gig Belly;
- (e) paint and paint color shall be Tiger Drylac U.S.A., INC., Drylac: 49/72530, Color: Ral 7023 (SM GL Tribo), Batch #: CAL 11944GG, or match; and
- (f) signage on waste receptacles shall be:
 - (i) 'LANDFILL' logo. Font Size is 1.25H, the style Univers, size for the symbol is 1.5". White vinyl sign to match similar signs on Existing Campus;
 - (ii) 'RECYCLE' logo. Font Size is 1.25H, the style is Univers, the size for the symbol is 1.5". White vinyl sign to match similar signs on Existing Campus; and
 - (iii) 'GREENWASTE' logo. Font Size is 1.25H, the style is Univers, the size for the symbol is 1.5". White vinyl sign to match similar signs on Existing Campus.

3.4.6 Integrated Pest Management

Developer shall design and construct the exterior aspects of all Facilities in accordance with the following requirements:

- (a) in accordance with Developer's Integrated Pest Management Plan;

- (b) to eliminate threats to health and safety of Users, including vector threats;
- (c) to exclude pests, ensure that Facilities do not provide potential attraction or habitat for pests, and prevent damage or soiling to Facilities;
- (d) to protect the environmental quality, appearance and cleanliness of the Project Site and the Facilities;
- (e) to facilitate inspection and monitoring of pest activities; and
- (f) to ensure continued efficient Campus Activities.

3.4.7 Intentionally deleted.

3.4.8 Exterior Acoustic Performance

3.4.8.1 Developer shall design and construct the Facilities to limit noise levels at the Project Site boundaries to no more than 60dBA at all times. Developer shall design and construct Facilities to limit noise disruption to Buildings on the Project Site and to buildings on the Existing Campus in accordance with the following noise disruption limits:

- (a) noise levels on the campus shall not exceed 70dBA Ldn;
- (b) noise levels shall be limited to 70dBA at the face of any building at all times except:
 - (i) noise levels at the face of any building during competition events at the Nonassignable Spaces: Exterior: Fields: Competition, Nonassignable Spaces: Exterior: Pool: Competition Areas, or other competitive venues shall not exceed 80dBA; and
 - (ii) noise levels at the face of any building due to the use of amplified sound at any performance space (Nonassignable Spaces: Exterior: Plaza, Nonassignable Spaces: Exterior: Athletics: Shared Plaza, Nonassignable Spaces: Exterior: Fields: Competition Areas, etc.) shall not exceed 90dBA.

3.4.8.2 The noise design limits shall include planning for all future facilities required under the Project Master Plan, assuming standard construction for such future facilities.

3.4.9 Project Site Urban Design Requirements

3.4.9.1 On sloping areas of the Project Site or where the existing landscape is to be modified, grading of the Project Site shall be curving with berms and longitudinal pathways, where needed, that move through the landscape.

3.4.9.2 All service access areas shall be located so as not to adversely impact circulation connections to the Existing Campus nor interfere with or create unsafe pedestrian circulation.

3.4.9.3 The Facilities shall be located so as to minimize interference with the Project Site's natural drainage.

3.4.9.4 Developer shall locate any antennae and other equipment on other features, such as water tanks, utility poles or buildings located within the Project Site or the Existing Campus.

3.4.10 Site Shade Requirements

3.4.10.1 The Buildings within the Project Site shall be positioned so as to provide shade and reduce urban heat effects. Structures with materials, design, or forms that produce solar glare into or onto adjoining Buildings, streets, pedestrian walkways or publicly accessible outdoor spaces shall be avoided.

3.4.10.2 Outdoor arcades, ground level pathways within twelve (12) feet of the conditioned envelope of a Building, and upper level walkways to the extent of their width, as required by Section 3.4.17.1 (Pedestrian Walkways) of the Technical Requirements, in aggregate, shall be shaded 25% of the time between the hours of 11:00 a.m. to 3:00 p.m. between March 21st and September 21st, whether by structure, form, or shading systems, and be protected from inclement weather and high winds which are prevalent from the north in the winter months.

3.4.10.3 Primary entrances into Buildings that are predominantly comprised of Housing or Academic Areas shall attain 25% shade coverage as measured at 1:00 P.M. on the equinox. This requirement does not apply to secondary entrances into such Buildings.

3.4.10.4 All primary pedestrian walkways and public gathering spaces that do not primarily serve as natural open spaces or recreation fields shall attain 25% shade coverage as measured at 1:00 P.M. on the equinox.

3.4.10.5 The fenestration of each Building shall be designed to limit solar gain, glare to interior spaces, and glare reflection. For interior spaces not protected by interior shades, glazing shall be shaded by exterior window shades, trees or other exterior shading 25% of the time between the hours of 11:00 a.m. to 3:00 p.m. between March 21st and September 21st, whether by structure, form, or shading systems.

3.4.10.6 Intentionally deleted.

3.4.10.7 Where required shading is provided by trees, the shade measurement shall be based on the anticipated fifteen (15) year tree canopy for the installed tree under normal Merced soil and climate conditions.

3.4.11 Site Topography and Grading

3.4.11.1 All Building entrances shall be universally accessible.

3.4.11.2 All Project Site grading shall be designed with consideration of adjacent Work, Facilities or Buildings so that landforms and grade transitions are coordinated between the Existing Campus, Project boundaries and such Work, Facilities or Buildings.

3.4.11.3 The grading plan shall be developed so as to maximize opportunities for on-site stormwater quantity and quality control.

3.4.11.4 Planted areas shall be graded to maximize opportunities for on-site stormwater quantity and quality control.

3.4.11.5 Paved areas shall be graded to encourage sheet flow to planted areas.

3.4.11.6 Slopes of planted areas shall not exceed a 2:1 (horizontal:vertical) slope to minimize potential for erosion.

3.4.11.7 Developer shall use structural soil for Primary Tree and Specimen Tree planting. Where structural soil is utilized in paved areas, Developer shall top such structural soil with a layer of clean drain rock between four (4) and six (6) inches in thickness.

3.4.11.8 Any cut and fill within the Project Site shall be balanced.

3.4.12 Building Placement

If Developer's Project Master Plan is based on an urbanistic type of layout for the Facilities (blocks and streets), then along circulation corridors, Building frontage setbacks shall be:

- (a) no greater than ten (10) feet for at most 25% of the Building frontages for Buildings that include predominantly Academic Areas;
- (b) no greater than fifteen (15) feet for at most 50% of the Building frontages for Buildings that include predominantly Housing Areas; and
- (c) no greater than ten (10) feet for at most 15% of the Building frontages for Buildings that include predominantly Student Life Areas.

3.4.12.1 Landscape elements shall be used to hold the street edge and define space.

3.4.12.2 If any Building that includes Housing Areas is located downwind of a source of toxic air contaminant emissions, Developer shall demonstrate to the Owner that the residential health risk in Housing Areas from new and existing toxic air contaminant sources does not exceed the San Joaquin Valley Air Pollution Control District air quality standards for toxic air contaminants. If necessary, the standards may be achieved by adjusting the location of Buildings, Housing Areas or the source of

emissions, appropriately locating intakes on Buildings that include Housing Areas, appropriately locating the exhaust stacks on the source of emissions, and/or including emissions controls at the source.

3.4.13 Building Height

No building shall exceed a height limit of seven (7) stories.

3.4.14 Landscape Design Requirements

3.4.14.1 General Landscaping Requirements

3.4.14.1.1 Developer shall design and construct all landscaping elements and associated irrigation systems within the Project Site.

3.4.14.1.2 The Project shall include the following types of landscaping, as indicated by the Area Data Sheets:

Landscaping	
LS1	<p>Core Landscaping: Core Landscaping comprises landscaping in core or prominent areas of the Project Site, including landscaping at the campus gateway, around Buildings, within plazas at the intersection of primary roadways, and at other focal points on the Project Site.</p> <p>A minimum of 20% of the total landscaping area shall be core landscaping.</p> <p>Core landscaping shall be highly landscaped and designed for public activity, with a mixture of shrub planter beds, landscaped trees, ground cover and lawn grasses. Planting shall be designed to have mature appearance within three years of installation. Tree planting in core landscaping shall include a minimum of five (5) Primary Trees and one Specimen Tree per acre. Ground cover planting shall be limited to no more than 10% of core landscaped area. Core landscaping shall be designed to require no more than twenty (20) gallons per square foot per year of irrigation.</p>
LS2	<p>Connecting Landscape: Connecting landscaping comprises landscaping of areas between the Core Landscaped areas, and between the core landscaped areas and the Existing Campus or the Project Site boundary.</p> <p>Connecting landscaping shall be designed to provide connectivity of appearance between the core landscaped areas and perimeter landscaping, and shall include trees, limited shrub planter beds, and native planting mix. Lawn grasses may be used adjacent to circulation pathways and as informal recreation areas. Tree planting in connecting landscaping may include Specimen Trees, Primary Trees and Secondary Trees. Ground cover planting, other than native planting mix is not permitted in connecting landscaping. Planting shall be designed to have mature appearance within seven years. Connecting landscaping shall be designed to use no more than ten (10) gallons per square foot per year of irrigation.</p>
LS3	<p>Perimeter Landscaping: Perimeter landscaping comprises landscaping between the Project Site and any Project boundaries other than the boundary at the Existing Campus. It shall include any perimeter treatment and shall interface with undeveloped or native plant systems.</p> <p>Perimeter landscaping shall be designed to provide connectivity of appearance with Project boundaries and surrounding planting. Planting shall be designed to require minimal maintenance.</p> <p>Planting shall be designed to have mature appearance within seven years. Perimeter landscaping shall be designed to use no more than two (2) gallons per square foot per</p>

Landscaping	
	year of irrigation.
LS4	Offstreet – Central Area Parking Landscaping: Landscaping at Nonassignable Spaces: Exterior: Parking Offstreet – Central Areas shall be designed as permanent landscaping commensurate with the landscaping of surrounding areas (core or connecting). Minimum landscaping density shall be 1 SF of planter island per 20 SF of parking (5%). Islands shall have a minimum area of 100 SF and a minimum width of four feet. Landscaping shall include edge landscaping and planter islands.
LS5	Offstreet – Peripheral Area Parking Landscaping: Landscaping at Nonassignable Spaces: Exterior: Parking Offstreet - Peripheral Areas shall be designed as permanent landscaping commensurate with the landscaping of surrounding areas (core or connecting), with the exception of the requirement for structural soil at tree planting.
LS6	Adjacent Space: Shall match adjacent landscaping.
LS7	Landscaping at Future Building Locations: Landscaping at future building locations comprises landscaping for Master Plan Only Spaces, which are not being constructed under this Project. The landscaping shall be designed to integrate with surrounding landscaped areas and to provide a fully finished appearance, while minimizing potential future site clearance and grubbing costs. Specimen Trees and Primary Trees shall not be used at future building locations. Future building locations shall not be used for primary plaza or, permanent site amenities as described in <u>Section 3.4.5</u> (Exterior Amenities) of the Technical Requirements, permanent circulation features including circulation roads, bicycle or pedestrian pathways, permanent parking lots or structures, or any other permanent feature. Irrigation systems shall be readily disconnected at future building locations without the need for re-circulating or re-routing of mains.
LS8	Special: Landscaping for specific functions as detailed in the Area Data Sheets for individual areas
LS9	None
Note: Total landscaping area shall be measured as the total area of the Project Site minus the total area covered by Buildings, Outdoor Facilities and Associated Improvements (excluding Open Space/Landscaping Improvements).	

Table 3.4.13.1.2: General Landscaping Requirements

3.4.14.1.3 Developer shall provide permanent irrigation in accordance with Section 3.4.13.8 (Automatic Irrigation System) of the Technical Requirements for those Areas landscaped in accordance with LS1 through LS9 of Table 3.4.13.1.2 (General Landscaping Requirements).

3.4.14.1.4 Developer shall design and construct Project Site landscaping to emphasize regional natives, avoid invasive or allergenic species, and to include plantings that are compatible with the Buildings and Outdoor Facilities. Artificial turf may be used as a landscaping material where appropriate.

3.4.14.1.5 Developer shall incorporate water-efficient landscaping practices in all landscape installations. Water-efficient landscaping practices shall include the use of water-efficient plants, temporary irrigation systems for plant establishment areas where mature plants will be able to survive without regular irrigation, grouping of plants according to water requirements, design of planting areas to maximize irrigation pattern efficiency, and mulch covering in planting areas. Irrigation systems shall be designed to an irrigation efficiency of greater than 0.85, and overall planting and irrigation design

shall not exceed the irrigation budgets identified in Table 3.4.13.1.2 (General Landscaping Requirements).

3.4.14.1.6 Developer shall provide landscaping around Buildings, except where pedestrian walkways directly abut the Building.

3.4.14.1.7 Planting within 100 feet of any Building shall not support flame or permit the spread of fire.

3.4.14.1.8 Only plants listed in Appendix 11 (Planting List) of the Technical Requirements may be used. Annual grasses and seed mixtures that dry out during the spring, summer or fall may not be used within 100 feet of any building. Mulch, bark or other ground cover material shall not support flame or spread of fire.

3.4.14.1.9 Pedestrian walkways to be lined with a continuous tree canopy shall use a single tree species per pedestrian walkway.

3.4.14.1.10 Landscaping, any alterations to Passive Open Space, and habitat and stormwater management features shall be designed and constructed to not create wetlands or habitat for species protected under state and federal regulation.

3.4.14.2 Security and Visibility

Developer shall design and construct landscaping to allow good visibility for personal security and to eliminate areas of concealment. Planting at Utility Devices that require access, including fire hydrants, backflow preventers, and such like, shall be installed as to allow a minimum of three (3) feet of clear access between the edge of plant when mature and the utility element on all sides, and clear access to roads or pathway. Planting at such elements shall not have thorns be bee attractants, or in any other way pose a hazard to people accessing the Utility Device.

3.4.14.3 Landscape Edging

Developer shall provide:

- (a) landscape headers or mow strips at all transitions between landscape forms, such as between grass areas and planter areas; and
- (b) concrete mow strips around all grass areas, except where the edge is formed by a flush paved area that can function as a mowing edge.

Mow strips shall be a minimum of twelve (12) inches wide. Mow strips are not required at landscape grass features not intended to be mown, such as native prairie grass planting.

3.4.14.4 Materials:

3.4.14.4.1 Soils, Amendments, Fertilizer and Mulch:

- (a) On-Site Topsoil Analysis: Developer shall obtain an analysis of on-site topsoil fertility. Developer shall submit three (3) one (1) quart samples from different Project Site locations to an independent soil testing laboratory pre-approved by the Owner and shall obtain from such laboratory soil chemical fertility evaluation and recommendations for soil amendments to improve fertility.
- (b) Imported Topsoil shall be natural, fertile, friable loam, capable of sustaining vigorous plant growth, free of subsoil roots, grass, excessive amount of weeds, stone and foreign matter. It shall have an acidity range (pH) of five and a half (5.5) to seven and a half (7.5) containing a minimum of 4% and a maximum of 35% organic matter. Developer shall submit topsoil samples to a pre-approved independent soils testing laboratory. Such pre-approved independent soils testing laboratory shall evaluate soil chemical fertility and shall recommend soil amendments to improve fertility.
- (c) Soil Amendments and Fertilizers: Developer shall obtain manufacturer's catalog cuts and guaranteed analysis of all soil amendments and fertilizers, including plant tablets, specified by the results of the soil analysis.
- (d) Structural Soil Mix: Structural soil shall be used for tree planting in paved areas and for trees adjacent to circulation corridors, and for Primary tree and Specimen Tree planting. Developer shall obtain manufacturer's catalog cuts and guaranteed analysis of specified structural soil mix or soils analysis of structural soil mixture made on-site.
- (e) Bark Mulch: ¼-inch nitrogenized "Mini Bark" fir bark. Color: Natural. f. Gravel Mulch: 3/8-inch – 1-inch crushed or washed rock.

3.4.14.4.2 Plants:

- (a) Plant materials shall be first class representatives of their normal species or variety. They shall have typical branching systems and vigorous root systems. Plants shall be free of pests and diseases, disfiguring knots, scalds, bark abrasions, or other injuries. Trees shall have straight trunks with the leader intact, undamaged and uncut unless multi-trunk trees are specified. Groundcovers, vines, and ornamental grasses shall be a minimum of one (1) gallon container in size. Shrubs and woody perennials shall be a minimum of one (1) gallon container in size. All one (1), five (5) and fifteen (15) gallon container stock shall have been grown in their containers for a minimum of six (6) months and a maximum of

one (1) year. All boxed trees shall have been transplanted into their boxes for a minimum of ten (10) months.

- (b) Plant materials and Specimen Trees for the Project shall be tagged at the nursery by the Owner's Authorized Representative and Developer's Authorized Representative. Should the nursery not have plant materials or Specimen Trees that meet the Owner's Authorized Representatives criteria, Developer shall locate another nursery with the plant materials and Specimen Trees for review by the Owner's Authorized Representative.
- (c) All plants shall be true to name, and in all cases, botanical names shall take precedence over common names. All plants of each clone, species, or cultivar shall be delivered to the site labeled with their full botanical name. Any plant material, after one (1) year following Final Acceptance, determined by the Owner to be untrue to the species, clone and/or variety specified, shall be replaced by Developer, at no cost to the Owner, to the equal condition of adjacent plants at the time of replacement.
- (d) All seed mixes shall be packaged and shipped in original containers as supplied by the seed supplier. Packages shall list seed mix proportions for inspection by the Owner's Authorized Representative.
- (e) Lawn and Play Area Sod: Sod shall be state-certified, pure, dense, well knit, vigorous, weed free sod mat at least eighteen (18) months old and having a minimum soil thickness of one (1) inch. The sod shall be in sixteen (16) inch width rolls or pallets with no more than 1/4 inch variation in width and with a maximum length of five (5) feet. Sod which has been cut for more than thirty-six (36) hours or which has dried out will be rejected by the Owner's Authorized Representative.
 - (i) Sod grass species for lawn areas shall be Dwarf Fescue; and
 - (ii) Sod grass species for active play areas (not sports fields) shall be Hybrid Bermuda Grass.
- (f) Seed Mixes: Seed shall be of commercial quality and conform to minimum purity and germination standards specified by supplier for each species. Seed varieties and quantities shall be remixed and packaged by a commercial seed supplier in bags or containers clearly labeled to show the name and address of the supplier, the seed names, the lot number, net weight, the percent of weed seed content and the guaranteed percentage of purity and germination. Weed seed in mixes shall not exceed 0.5% by weight.

3.4.14.4.3 Tree Planting Materials:

- (a) Tree stakes: 2-inch diameter x 10 feet tall lodgepole pine treated with copper naphthanate, chamfered top and bottom. Install two (2) per 15-gallon container and 24-inch box trees.
- (b) Tree straps: Arbor Tie, manufactured by Deep Root Partners, San Francisco, CA, 415-437-9700 or equal.
- (c) Tree stakes for trees in grates: Mega Grate Stake and associated hardware as manufactured by JR Partners, Turlock, CA 888-333-3090 or equal.
- (d) Root guards: DeepRoot Model #UB24-2, as manufactured by Deep Root Partners, L.P., San Francisco, CA, 415-437-9700 or equal.

3.4.14.5 Installation of Landscape Materials

3.4.14.5.1 Placing Topsoil and Soil Preparation:

- (a) Excavate all planting areas to sufficient depth to accommodate a twelve (12)-inch minimum depth of topsoil so that the finish grade of the planting areas shall be plus or minus one half ($\frac{1}{2}$) inch from the finish grade shown in the drawings.
- (b) Subsoil in all planting areas shall be scarified to a depth of ten (10) inches with the spacing of ripper teeth no greater than twelve (12) inches on center. All rock and other debris more than 2 inches in any dimension shall be removed from the planting areas.
- (c) Spread topsoil in six (6)-inch lifts to a depth of twelve (12) inches over all planting areas. The first lift shall be thoroughly incorporated into the subsoil with a rototiller prior to placement of the second lift. Areas of existing landscaping shall not receive topsoil placement unless, at the discretion of the Owner's Authorized Representative, infilling of topsoil is required. Remove stones, roots, grass, weeds, debris and foreign material while spreading. Compact topsoil as specified in the soils test.
- (d) Distribute soil amendment at rate specified by results of soils test. Till soil to twelve (12)-inch depth with rotary tiller so that amendment is uniformly mixed throughout and soil is friable. If soil is dry, add water to optimum moisture content. If soil is too wet, stop work and resume when conditions are satisfactory. Remove all rocks and debris. Limit fine grading to areas which can be planted soon after grading.
- (e) Rake smooth soil to a finished grade, pitched for proper drainage. Round all changes in gradient and eliminate all depressions where

water will pool. Water areas to settle soil. Correct low spots and irregularities after drying.

- (f) Apply top-dress fertilizer in all lawn, groundcover, shrub and vine pocket areas as specified by results of the soils test. Water bed thoroughly after fertilizer application. The use of organic compost and fertilizers is preferred over chemical ones.

3.4.14.5.2 Placing of Structural Soil:

Place structural soil in accordance with the UC Merced Tree Planting and Early Care Guidelines. Note that areas with poor drainage may require installation of drainage sumps or drain lines to remove water collected at the bottom of structural soil planters.

3.4.14.5.3 Planting Trees and Shrubs:

- (a) Required trees include Specimen Trees, Primary Trees and Secondary Trees.
 - (i) Specimen Trees are trees intended for key landscape elements. They shall be a minimum of thirty-six (36)-inch box, or two (2)-inch caliper at planting;
 - (ii) Primary Trees are trees intended as permanent elements in the landscaping, which will provide good growth and rapid appearance of maturity. A minimum of forty (40) Primary Trees shall be a minimum of twenty-four (24) inch box size, and the balance of Primary Trees shall be a minimum of fifteen (15)-gallon container size;
 - (iii) Secondary Trees are trees intended to be temporary or secondary elements in the landscaping, where speed of growth and resilience are less critical. The trees shall be a minimum of fifteen (15)-gallon container size. Secondary Trees shall be planted and maintained in accordance with Section 3.4.13.5 (Installation of Landscape Materials) of the Technical Requirements, with the exception of the requirement for structural soil; and
 - (iv) All hedge plants shall be a minimum of five (5)-gallon container size.
- (b) Plant trees and shrubs in accordance with the UC Merced Tree Planting and Early Care Guidelines and the following:
 - (i) Drainage Test: Sample tree pits shall be filled with two (2) feet of water prior to planting. If pits fail to drain overnight, notify the Owner's Authorized Representative prior to proceeding;

- (ii) Layout all plants at locations shown on drawings. Make minor adjustments necessary to avoid conflicts with utilities, existing site improvements, etc.;
 - (iii) Spot trees in their containers or stake locations. Secure approval of locations by the Owner's Authorized Representative before excavating holes;
 - (iv) Excavate holes so that after settlement, the crown of the plant will be two (2) inches above surrounding grade. Scarify all sides of hole;
 - (v) Set plant carefully so that, after settlement, the crown will be two (2) inches above surrounding grade. If required, place backfill beneath rootball and compact to 95%. Following placement of plant, install backfill mix in twelve (12)-inch layers, tamping or flooding with water to settle to proper height of setting plant; and
 - (vi) Staking: Install tree stakes as shown on drawings. Locate stakes on prevailing windward side of tree unless otherwise directed. Stakes shall be driven a minimum of eighteen (18) inches into firm ground. Provide tree ties in at least two locations. Stakes shall not extend into canopy of tree. Allow for some natural sway and movement of the tree after staking has been completed. Remove all nursery stakes after establishment period.
- (c) Irrigation for trees: Provide two (2) bubblers for each tree. Each bubbler is to be set within a four (4)-inch diameter perforated pipe filled with pea gravel and placed on opposite sides of the rootball.

3.4.14.5.4 Installation of Sod:

- (a) Thoroughly cultivate soil on all lawn areas to a depth of six (6) inches. Remove all debris and other foreign and deleterious material. The finished surface shall be lightly rolled and free of humps, depressions, and other irregularities.
- (b) Water the top six (6) inches to eight (8) inches of soil until this zone has an optimum moisture content for root growth.
- (c) Lay the sod in rows with staggered ends neatly and tightly butted on all edges. No overlap, gaps, ripples or uneven placement will be accepted.
- (d) Lawn area shall be lightly rolled after sodding to ensure optimum contact with the soil.

- (e) All trimming and cutting shall be completed with sharp tools and carefully fitted so the final appearance is a solid continuous lawn.
- (f) Protect sodded areas by erecting temporary fences, barriers, signs, and other similar protection as necessary to prevent trampling.
- (g) Mow the lawn when the sod is firmly rooted and the grass has grown to three (3) inches in height. Following the first cutting, the lawn shall be maintained at a two (2)-inch height or as directed by the Owner's Authorized Representative based upon sod mix.

3.4.14.6 Planting Closeout

3.4.14.6.1 Inspection and Acceptance of Landscaping

- (a) Developer shall request inspection of the planting work by the Owner's Authorized Representative in writing no less than two (2) weeks before the anticipated date of completion of the landscaping work.
- (b) Inspection shall determine the health and vitality of the plant and landscaping material.
- (c) Following inspection, Owner will notify Developer of any deficiencies that require repair/replacement by Developer.

3.4.14.6.2 Landscaping Maintenance and Replacement

- (a) Developer shall be responsible for all landscaping within the Project Site during the Landscaping Installation Period and the Landscaping Maintenance Period.
- (b) During the Landscaping Installation Period and the Landscaping Maintenance Period, Developer shall be responsible for any vegetation indicated in the Planting Plan or in landscaping plans as submitted in accordance with Appendix 4-B (Facilities Submittals) of the Technical Requirements and shall:
 - (i) provide all watering, weeding, cultivation, and spraying necessary to keep the grass, plants, trees and any vegetation installed as part of the Project in a healthy, growing condition and to keep the landscaped Areas neat and attractive;
 - (ii) apply fertilizer as recommended by the soils tests and by the manufacturer for the local seasonal and climatic conditions;
 - (iii) mow lawn areas without cuttings remaining in mowed area; and

- (iv) reseed erosion damage as necessary to establish a uniform stand of specified grasses at the end of the Landscaping Maintenance Period.

3.4.14.6.3 During the Landscaping Installation Period, the Landscaping Maintenance Period and the Landscaping Guarantee Period, should the appearance of any plant indicate a lack of health, or should a plant die-back and lose the form and size originally specified even if it has taken root and is continuing to grow after the dieback, Developer shall immediately replace that plant at no cost to the Owner.

3.4.14.7 Planting Plan

The Planting Plan shall include the types of plants to be utilized for landscaping along with their names and soil utilized for such plants; and a sketch showing their proposed placement within the Project Site. The Planting Plan shall not be a substitute for landscaping plans submitted as part of the D&C Submittals in accordance with Appendix 4-B (Facilities Submittals) of the Technical Requirements. An electronic version in PDF (8½ inches by 11 inches) of the final Planting Plan shall be updated and submitted to Owner upon Final Acceptance, along with an electronic version in PDF (11 inches by 17 inches) of the landscape plans for the Project Site.

3.4.14.8 Automatic Irrigation System

3.4.14.8.1 Developer shall design and construct a permanent automatic irrigation system for all planted areas within the Project Site, except that where planted areas consist of self-sufficient drought-tolerant plant species, a temporary irrigation system used only for establishing the plants in that area is permitted. The irrigation system shall be designed to prevent overspray or run-off from the irrigation zone onto any paved surface or into any surface water drainage element. Overspray or run-off into other planting zones shall be minimized.

3.4.14.8.2 The automatic irrigation system shall be designed based upon WUCOLS guidelines and meet the LEED 2009 Requirements for Water Efficiency, Outdoor Water Use Reduction Credit WEc1: Water Efficient Landscaping to reduce overall landscape use of potable water by 50% from calculated midsummer baseline figures, and contain an evapotranspiration system. In addition, the system controllers shall include soil moisture monitoring and weather monitoring to manage watering cycles.

3.4.14.8.3 In accordance with Section 3.5.6.3 (Purple Pipe System) of the Technical Requirements, the automatic irrigation system shall be fed from the Purple Pipe System.

3.4.14.8.4 In compliance with Section 3.5.6.3 (Purple Pipe System), Developer shall also develop and implement an irrigation strategy that integrates stormwater usage from either retained stormwater or recharged aquifer as a source for irrigation water.

3.4.14.8.5 All irrigation zones shall be separated by planting type and tree irrigation shall be considered a separate zone.

3.4.14.8.6 All irrigation piping shall conform to:

- (a) ASTM Designation: D 1785; ASTM Designation: D 3139; and ASTM Designation: D 2241; or
- (b) ASTM Designation: D 2672.

3.4.14.8.7 All irrigation piping shall conform to the requirements set forth in Sections 3.4.14.7 (Materials and Installation Requirements) and 3.5.6.3 (Purple Pipe System) of the Technical Requirements.

3.4.14.8.8 The available water pressure shall be verified and an irrigation booster pump, if necessary, shall be provided to maintain adequate water pressure.

3.4.14.8.9 Easy access to sprinkler heads for inspection and maintenance shall be accommodated in the automatic irrigation system layout.

3.4.14.8.10 Prior to planting closeout as set forth in Section 3.4.13.6 (Planting Closeout), Developer shall program and adjust sprinkler heads and train Owner in the programming and operations of such sprinkler heads.

3.4.15 Project Site Circulation

3.4.15.1 General Requirements

3.4.15.1.1 Developer shall design and construct a circulation system for the Project that encompasses vehicular, pedestrian and bicycle circulation within the Project Site in accordance with the following requirements:

- (a) in compliance with the Merced County Department of Public Works Improvement Standards and Specifications, to the extent not otherwise specified in this Section 3.4.14 (Project Site Circulation);
- (b) to accommodate full build-out capacity of 10,000 FTEs, which consists of the Existing Campus together with the full build out of the Facilities;
- (c) with design speed between twenty-five (25) and thirty-five (35) miles per hour (mph) and to include traffic calming devices. The design of all corner radii shall conform to such design speeds and to the appropriate design vehicle selected in accordance with Section 3.4.14.4 (Traffic Loading and Dimensions);
- (d) all paved areas shall be constructed with clean and neat edges, and shall incorporate appropriate curbs or edging elements as needed to prevent spreading or edge degradation, and to prevent plant intrusion;
- (e) to accommodate bicycle circulation with appropriate bike lanes, and parallel parking, as appropriate, on all circulation roadways

within the Project Site, including any roadway dedicated to transit, service, general traffic or other uses; and

- (f) bridge superstructures shall have a minimum useful life of fifty (50) years and bridge substructures shall have a minimum useful life of seventy-five (75) years.

3.4.15.2 Roadway Network Requirements

3.4.15.2.1 Roadway Network Traffic Flow

All-way stop intersections, two-way stop intersections, driveways, and any intersection, whether stop-controlled or traffic-signal controlled, and within the Project Site, shall be designed to achieve a minimum level of service D (as such level of service is described in the most recent version of the Highway Capacity Manual, in compliance with Section 2.3.1 (Manuals and Guidelines) of the Technical Requirements) during peak hour;

3.4.15.2.2 Roadway Intersection Spacing

- (a) Roadway intersections along main collector roadways within the Project Site shall have a minimum spacing of 500 feet, as measured from centerline to centerline of each intersecting roadway.
- (b) Roadway intersections at all other roadways within the Project Site not specified in Section 3.4.14.2.2(a) shall have a minimum spacing of 150 feet, as measured from centerline to centerline of each intersecting roadway.

3.4.15.3 Site Paving Materials

All areas subject to vehicular traffic, including both regular traffic (roads, service and loading areas, and parking), and occasional traffic (walkways, plazas, bicycle paths and landscaped areas) shall include the following types of paving materials, as indicated by the Area Data Sheets:

Paving	
SPV1	Hard Vehicular Paving: Hard paved surfaces, asphalt, concrete, unit pavers or similar
SPV2	Hard Vehicular Paving or Gravel Paving: Vehicular traffic surfaces: <ul style="list-style-type: none"> • Hard paved surfaces: asphalt, concrete, unit pavers or similar. • Developer may use compacted gravel paving for Areas designated as SPV2 in the Area Data Sheets
SPV3	High Quality Pedestrian Paving: High quality walkable and wheelchair accessible paved surfaces: <ul style="list-style-type: none"> • Hard paved surfaces: asphalt, concrete, unit pavers or similar. • Stabilized decomposed granite may be used for no more than 20% of any plaza area. • Asphalt paving shall not be used for plazas.
SPV4	Other Pedestrian or Bicycle Paving: Walkable and wheelchair accessible paved

	surfaces: <ul style="list-style-type: none"> • Hard paved surfaces: asphalt, concrete, unit pavers or similar. • Stabilized decomposed granite.
SPV5	None
SPV6	Hard Vehicular Paving Drive Aisles with Gravel Paving Parking: Vehicular traffic surfaces: <ul style="list-style-type: none"> • Hard paved surfaces: asphalt, concrete, unit pavers or similar for all drive aisles and circulation roads. • Compacted gravel paving for car parking stalls.

Table 3.4.14.3: Site Paving Materials

(a) Vehicular paving:

- (i) all paving shall be uniform vehicular quality paving, constructed with appropriate subgrade preparation, sub base, and base to handle all anticipated traffic demands for loading, speed, turning, stopping and starting with no rutting or buckling. All paving designs shall be based on a Traffic Index (TI) calculation determined in accordance with Caltrans Highway Design Manual (2012) Section 316.3;
- (ii) hard vehicular paving shall be hard vehicular quality paving, such as asphalt, concrete, unit pavers, or similar. Road construction shall be appropriate for material selected. Refined coal tar sealers shall not be used. Both the base and sub-base for hard vehicular paving shall have a minimum useful life of thirty-five (35) years; and
- (iii) gravel paving, shall be compacted class II aggregate (gravel), constructed to ensure surface gravel is adequately bound to the substrate matrix to minimize loose stones.

(b) Pedestrian and bicycle paving:

- (i) all paving shall be uniform pedestrian and bicycle quality paving, constructed with appropriate subgrade preparation, sub base, and base, to handle all anticipated traffic demands for loading, speed, turning, stopping and starting with no rutting or buckling. All pedestrian and bicycle paving shall be designed to accommodate service and maintenance vehicles up to twenty-two thousand (22,000) pounds;
- (ii) hard paving shall be hard surfaces such as asphalt, concrete unit pavers or similar with a three year aged solar reflectance index no less than 0.4. Asphalt paving shall not be used for plazas;
- (iii) Stabilized Decomposed Granite paving shall be one (1)-inch minimum to two (2)-inch maximum depth of stabilized

decomposed granite. A geotextile fabric shall be used between DG and the aggregate base. Decomposed granite may be only used, where the material is kept a minimum of twenty feet from any building entrance, and adequate walk-off protection is provided to ensure no material is tracked into any building; and

- (iv) all walking surfaces shall have a coefficient of friction not less than 0.30. The coefficient of friction will be measured by California Test 342 before pavement is opened to public traffic.

3.4.15.4 Traffic Loading and Dimensions

Project Site circulation areas as specified in this Section 3.4.14 (Project Site Circulation) shall meet the following traffic loading requirements, as indicated by the Area Data Sheets:

Traffic Loading	
TL1	Road and Service/Loading Zone: Full traffic loading capacity
TL2	Parking Loading: Parking loading capacity
TL3	Pedestrian and Bike Paving: Pedestrian, bicycle and occasional vehicle loading
TL4	None

Table 3.4.14.4: Traffic Loading

- (a) TL1 and TL2: Roadways, parking and service/loading zones: All vehicular areas shall be structurally designed to accommodate the maximum anticipated vehicle and withstand the anticipated load, speed, size and frequency. Anticipated vehicles include full sized busses and coaches, and fully loaded fire trucks. All paving designs shall be based on a Traffic Index (TI) calculation determined in accordance with Caltrans Highway Design Manual (2012) Section 316.3. Loading capacity shall not be limited to designated fire lanes.
- (b) TL3: Bike paths and pedestrian areas. All bike paths and pedestrian areas shall be adequate to support occasional vehicular traffic, including maintenance vehicles and delivery trucks up to 14,000 lb. unloaded weight, ambulances, and exterior maintenance equipment such as boom lifts with weights up to twenty-two thousand (22,000) lbs. Higher load requirements will be required at any fire access or roof equipment hoisting locations.
- (c) All elements within the paved areas, including tree grates, manhole/handhole/valve covers shall be designed to accommodate traffic loading.

3.4.15.5 Project Site Roadway Signage

3.4.15.5.1 Developer shall provide all required signage for safe operations and wayfinding for all roadways, parking, pedestrian walkways and bicycle paths. All pavement markings and roadway signage for circulation roadways shall conform to the requirements of the Merced County Department of Public Works Improvement Standards and Specifications, AASHTO or MUTCD, as applicable. In addition, Developer shall provide single tube sign support posts concrete set, eight (8) feet tall in accordance with the following requirements as noted in the Area Data Sheets, and in locations as directed by the Owner for Owner supplied signage:

Site Signage	
SS1	Road, Walkway, Bicycle Path: Install all necessary or code required signage and traffic markings for safe traffic operation and wayfinding. In addition, install one standard sign pole for each fifty (50) feet of roadway for Owner-provided informational signs. Coordinate location of Owner signs with Owner.
SS2	Parking - Large Lot: Install all necessary or code required signage and traffic markings for safe traffic operation and wayfinding. In addition, install one standard sign pole for every thirty (30) stalls for Owner-provided informational signs. Coordinate location of Owner signs with Owner.
SS3	Parking - Small Lot: Install all necessary or code required signage and traffic markings for safe traffic operation and wayfinding. In addition, install one standard sign pole for every ten (10) stalls for Owner-provided informational signs.
SS4	General: Install all necessary or code required signage and traffic markings for safe traffic operation and wayfinding.
SS5	None

Table 3.4.14.5.1: Site Signage

3.4.15.6 Pedestrian Crossing Requirements

3.4.15.6.1 Service access roads shall avoid crossing major pedestrian paths to the maximum extent possible. Where streets cross major pedestrian paths or routes, enhanced pedestrian treatments, such as raised crosswalks, shall be provided.

3.4.15.6.2 High visibility pedestrian crossings shall be provided by narrowing streets at crossing points, eliminating on-street parking within twenty-five (25) feet of pedestrian crossings, and providing enhanced pavement markings, signage for crossings, and lighting and LED pole mounted signage in accordance with Section 3.8.13 (Signage) of the Technical Requirements.

3.4.15.7 Materials and Installation Requirements

Materials and installation for all circulation roadways and paths shall be suitable for planned usage. Pavers and grasscrete shall not be used in emergency access lanes where ladder trucks will stage. For regular fire engine access, pavers and grasscrete are acceptable as long as they meet the weight requirement for the fire apparatus.

3.4.15.8 Roadway Cross-Section Requirements

3.4.15.8.1 Lane width shall be a minimum of ten (10) feet for 25 mph streets eleven (11) feet if the street is a bus or truck route, eleven (11) feet for 30 mph streets and twelve (12) feet for 35+ mph streets, excluding shoulder, on street parking, bike lanes or medians. Number of lanes shall be based on traffic analysis to ensure a minimum level of service of D at all roads and intersections, recognizing anticipated peak traffic flows related to class or other campus schedules. Turn and acceleration lanes shall be provided as needed to avoid disrupting flow on primary traffic lanes.

3.4.15.8.2 The minimum clear width on any emergency access road is twenty-two (22) feet.

3.4.15.8.3 Where FDCs & PIVs are located at the curb, the road width must be sufficient to allow vehicular traffic to pass a stopped emergency vehicle. One (1) traffic lane to pass is sufficient.

3.4.15.8.4 Intersections, corners and turns shall be designed to provide adequate turning radius for all anticipated vehicles, including busses, fire trucks (ladder truck), and large delivery vehicles.

3.4.15.8.5 Roads may be used for stormwater management and overland flow in the one hundred (100)-year twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater), provided at least one traffic lane in each direction is clear of surface water, access to buildings or other facilities required to be functional is not compromised, and there is no damage to the Facilities, Infrastructure, Existing Campus or Existing Infrastructure.

3.4.15.9 Project Entryway Treatment

Developer shall design and construct the main entrance to the Project Site to include “gateway treatment”. Such gateway treatment shall include one primary gateway sign located at the Bellevue Road/Lake Road intersection, one secondary gateway sign located at the Bellevue Road/Live Oak Lane intersection (as identified in the Project Master Plan), landscaping, special lighting and alternative pavement treatments. Developer shall submit to the Owner for review and approval those features to be included in the gateway treatment.

3.4.15.10 Emergency Access/Service Route Requirements

3.4.15.10.1 Developer shall design and construct an emergency access/service route for emergency and service vehicles connecting Lake Road to the North Bowl Parking Lot, as identified in Appendix 8 (Existing Parking Lots) to the Technical Requirements, and shall comply with the requirements set forth in this Section 3.4.14 (Project Site Circulation). The emergency access/service route shall not include Ranchers Road or Scholar's Lane.

3.4.15.10.2 Any portion of the emergency access/service route serving Facilities shall be constructed as either Nonassignable Spaces: Exterior: Roadway: Primary or Nonassignable Spaces: Exterior: Roadway: Secondary Areas.

3.4.15.10.3 Any portions of the route providing only emergency and service vehicles with access to the North Bowl Parking Lot may be constructed as Nonassignable Spaces: Exterior: Roadway: Emergency/Service Access Areas, provided that traffic loading is designed for full vehicular load suitable for emergency vehicles and fire trucks.

3.4.15.10.4 A bicycle route shall be provided from the Lake/Bellevue intersection to a point at least one thousand, five hundred (1,500) feet east of the intersection, connecting to the campus bicycle circulation network at Live Oak and at Cottonwood Meadow, each as identified in the Project Master Plan. The bicycle route shall meet the requirements of Section 3.4.17.3 (Bicycle Facilities Requirements) of the Technical Requirements, except that the bicycle route may include either on-street bicycle lanes or off-street bicycle paths running parallel to the road. Bicycle paths are not required on the portion of the emergency access/service route that extends beyond the point of connection to the campus bicycle path network.

3.4.15.10.5 The bridge across the Fairfield Canal shall be designed and constructed in accordance with the requirements set forth in Section 3.1.2.4 and Section 3.4.14.1.1 of the Technical Requirements. In addition, the bridge shall have TL1 traffic loading capacity and a minimum clear width of twenty nine (29) feet to accommodate future conversion of the emergency access/service route to a primary campus road. The bridge shall be designed to accommodate future Utilities crossing the Fairfield Canal, including adequate loading capacity and pathways for future domestic and reclaimed water and chilled water supply and return each with a minimum of 12" pipe, and sewer lines with a minimum of 18" pipe.

3.4.16 Bellevue Road/Lake Road Intersection Improvements

Developer shall design and construct improvements to the Bellevue Road/Lake Road intersection:

- (a) within the boundaries of the Bellevue Intersection Site;
- (b) in accordance with the City of Merced Design and Engineering Standards for Intersections; and
- (c) to achieve a minimum level of service C (as such level of service is described in the most recent version of the Highway Capacity Manual) for traffic volumes projected at full build-out capacity of 10,000 FTEs, which consists of the Existing Campus together with the full build out of the Facilities.

3.4.17 Transit Facilities

Developer shall design and construct transit facilities comprising of Nonassignable Spaces: Exterior: Transit Hub Area and Nonassignable Spaces: Exterior: Transit Shelter Areas along major circulation roadways within the Project Site. A minimum of two (2) transit stops each with a Transit Shelter Area shall be provided in addition the Transit Hub Area, distributed along bus routes with specific locations of transit stops to be determined in consultation with the Owner. A transit stop or Transit Hub Area shall be

within one quarter mile of the Student Activity: Conference Center and the Master Plan Only Space location of the arena, and shall adequately support transit circulation within the Project Site and the Existing Campus.

3.4.17.1.1 Transit Hub

Developer shall design and construct a central Nonassignable Spaces: Exterior: Transit Hub Area that will provide bus waiting and driver rest amenities. The bus waiting area shall accommodate eight (8) buses. The driver rest amenities shall provide access to restrooms and shaded waiting area. Public restrooms in adjacent Facilities may be used for driver restrooms, provided they are within fifty (50) feet of the Transit Hub Area, and they are accessible to drivers at all times.

3.4.17.1.2 Transit Shelters

Developer shall design and construct transit shelters within the Project Site in accordance with the following:

- (a) At a minimum, transit shelters shall be provided at all transit stops;
- (b) All transit shelters shall be consistent in style, size, and color throughout the Project Site, shall be consistent with Existing Campus architectural design elements, and shall not intrude into pedestrian circulation;
- (c) Shelters serving single bus routes with anticipated passenger waiting volumes less than twenty (20) people shall be one hundred (100) SF. Shelters serving multiple bus routes, or with passenger waiting volumes of twenty (20) or more people shall be two hundred (200) SF;
- (d) Transit shelters shall have an appropriate slope for drainage and be universally accessible;
- (e) Transit shelters shall provide space for route map and timetable service information at every stop;
- (f) Shelters shall include a seating bench, trash, compost and recycling receptacles, shading by means of trees or canopies, and appropriate lighting. In addition, paved space shall be provided for exterior waiting areas;
- (g) Shelter walls shall provide for wind and rain protection and be a minimum of 80% transparent to provide for security and visibility; and
- (h) In addition, bus drop off areas shall be provided at the Nonassignable Spaces: Exterior: Fields: Competition Areas and the Student Life: Student Activity: Conference Center Area, unless

bus parking is provided within one hundred (100) feet of such Areas.

3.4.18 Pedestrian and Bicycle Facilities Requirements

3.4.18.1 Pedestrian Walkways

Developer shall design and construct the Facilities to adequately support pedestrian circulation within the Project Site and in accordance with the following requirements:

- (a) Width shall be commensurate with the level of pedestrian activity projected within the particular location of such pedestrian walkways, and consistent with the requirements set forth in Section 3.4.17.1(b) of the Technical Requirements. Primary pedestrian walkways shall be a minimum of ten (10) feet wide.
- (b) Secondary walkways shall be a minimum of six (6) feet wide. Light fixtures and trees may be placed within the minimum width, provided they do not reduce the clear walking surface by more than one (1) foot, six (6) inches. Other site amenities or furniture must be placed on paved pads outside the walkway minimum width.
- (c) All paths of travel shall meet ADA requirements, and at a minimum, shall be wide enough to accommodate two-way pedestrian and wheelchair traffic.
- (d) Where a pedestrian path crosses a vehicular route, a clearly marked crosswalk shall be provided.
- (e) Pedestrian walkways may not be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements.

3.4.18.2 Plazas and Gathering Spaces

Developer shall design and construct the Facilities to in accordance with the following requirements:

- (a) Nonassignable Spaces: Exterior: Plaza Areas and Nonassignable Spaces: Exterior: Athletics: Shared Plaza Areas shall include a mixture of paved and landscaped areas with amenities and shade. The overall length to width ratio shall not exceed 2:1. Paving and amenities shall be of an overall higher quality than for other pedestrian paved Areas, with a mixture of better quality paving, greater design detailing, and attention to place making.
- (b) At least two (2) Nonassignable Spaces: Exterior: Plaza: Formal Areas shall be designed for formal gatherings with performance

power, stepped or graded seating areas and planned performance and equipment locations. Performance locations shall be planned with adequate sight lines and performance framing, and with attention to potential acoustic control to limit disruption to other Facilities. Equipment location shall include a minimum of two support assemblies at each performance location and two at each audience location. The support assemblies shall be suitable for mounting lighting, speakers or similar performance components. Support assemblies can be incorporated into other site features such as trellises. Provide two 200A exterior lockable performance power distribution boxes at one Plaza: Formal Area. Provide one 200A exterior lockable performance power distribution box at the other Plaza: Formal Area. Performance power shall include a shunt trip that silences the performance audio when the emergency mass notification system is activated.

- (c) Nonassignable Spaces: Exterior: Athletics: Shared Plaza shall be located adjacent to the Student Life: Athletics Areas and shall provide a common pedestrian gathering/circulation space for users of those facilities.
- (d) All Nonassignable Spaces: Exterior: Plaza Areas shall meet ADA requirements.
- (e) Decomposed granite may be used for no more than 20% of a Nonassignable Spaces: Exterior: Plaza Area, provided the material is a minimum of twenty feet from any building entrance, and adequate walk-off protection is provided to ensure no material is tracked into any building. Asphalt paving shall not be used for plazas.
- (f) Provide planters and shade trees to limit heat island effect and provide visual relief. Paved areas shall not exceed 20' x 40' without planters or trees. Planters and trees shall not obstruct primary paths of travel. Landscaping shall be designed to allow good visibility for personal security and eliminate areas of concealment.
- (g) Plazas may be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements, provided access to buildings or other facilities required to be functional is not compromised, and there is no damage to fabric or utilities.

3.4.18.3 Bicycle Facilities Requirements

Developer shall design and construct the Facilities to adequately support bicycle circulation and storage at the Facilities and to meet the following requirements:

- (a) Bicycle lanes shall be provided on all streets and in conformance with this Section 3.4.17.3 (Bicycle Facilities Requirements), with the exception of managed access streets and streets with separated bicycle paths.
- (b) On-street bicycle lanes shall have a minimum width of three (3) feet and shall have appropriate pavement markings in accordance with California Department of Transportation or MUTCD criteria.
- (c) Off-street bicycle paths shall be provided to supplement the bike lane network, in addition to or in place of bike lanes where appropriate.
- (d) Minimize bike paths separate from and paralleling roadways, unless they can be designed in a manner that offers significant safety or direct access advantages over streets with integral bike lanes.
- (e) Primary bicycle paths shall be a minimum of six (6) feet wide. Secondary bicycle paths shall be a minimum of six (6) feet wide. Light fixtures, trees or other features may not be placed within the minimum width.
- (f) Separate pedestrian paths and bicycle paths.
- (g) Provide landscaping buffers between bicycle paths and pedestrian walkways, roads, and buildings. Buffers shall be of adequate size to ensure that designed planting does not encroach onto bicycle path width. Landscaping shall be designed to allow good visibility for personal security and eliminate areas of concealment.
- (h) Bicycle paths may not be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements.
- (i) Short-term bicycle parking shall be provided through the use of bicycle racks securely anchored to the ground at all Buildings, bus hubs or stops, transit shelters, parking lots and parking garages. Short-term bicycle parking shall be provided for at least 2.5% of all peak visitors but no fewer than four parking spaces per Building. Parking shall be provided in conformance with LEED 2009 guidelines.
- (j) Bicycle parking installations shall include a bicycle area parking pad with a pervious surface. A minimum clear space of five (5) feet shall be provided between the edge of the bicycle area parking pad and adjacent roadways or sidewalks.

- (k) Bicycle racks shall be selected to be compatible with the bicycle racks in the Existing Campus and shall have a galvanized finish.

3.4.19 Parking Systems

3.4.19.1 General Parking Requirements

Developer shall design and construct the Facilities to include a parking system that adequately supports the Program and that meets the following requirements:

- (a) The total number of Personal Occupant Vehicle (POV) paid parking spaces required for both the Project Site and the Existing Campus (combined) is four thousand two hundred and forty six (4,246). POV parking is for cars and light trucks. Motorcycle parking, if provided, shall be in addition to the POV parking space requirements.
- (b) Developer shall construct a minimum of one thousand five hundred and seventy (1,570) new Personal Occupant Vehicle (POV) parking spaces within the Project Site. In addition, Developer shall construct replacement parking areas within the Project Site for any Existing Parking Lots removed by the Project. Replacement spaces, if required, shall be of the same designation (ADA, EV, service) as the space being replaced.
- (c) The construction of new parking spaces and the removal of existing parking spaces within the Project Site shall be in accordance with Section 3.4.3.1 (Existing Parking Lots) of the Technical Requirements.
- (d) A minimum of 20% of the new and replaced parking spaces shall be in Nonassignable Spaces: Exterior: Parking: Offstreet – Central Areas as specified in the Area Data Sheets, or in a centrally located parking structure.
- (e) New parking spaces shall be distributed as follows:
 - (i) A minimum of fifty (50) POV spaces adjacent to Student Life: Student Activity: Conference Center Areas;
 - (ii) A minimum of twenty-five (25) POV spaces adjacent to Student Life: Athletics: Fields Areas;
 - (iii) A minimum of ten (10) POV spaces adjacent to Student Life: Athletics: Aquatic Center Areas;
 - (iv) Intentionally deleted.
 - (v) A minimum of eight (8) POV spaces adjacent to Student Life: Wellness Center;

- (vi) A minimum of eight (8) POV spaces adjacent to Student Life: Enrollment Center Areas; and
 - (vii) The balance of the new parking spaces shall be located in parking areas within the Project Site.
- (f) The parking spaces set forth in the parking distribution described in Section 3.4.18.1(e) of the Technical Requirements shall be placed at a walking distance of 300 feet from the Area specified in Section 3.4.18.1(e), as applicable.
 - (g) Those parking Areas designated as serving Housing: Residence Hall shall be located no farther than a fifteen (15) minute walk, as calculated utilizing an average speed of three (3) miles per hour, from the nearest Nonassignable Spaces: Exterior: Parking: Offstreet Area.
 - (h) Intentionally deleted.
 - (i) Intentionally deleted.
 - (j) 2% of the new POV parking spaces shall be planned for Owner's service vehicle parking spaces. Service vehicle parking spaces shall all be full size spaces. Developer shall provide one standard sign post and Owner approved signage at each service vehicle stall.
 - (k) At least 5% of the new POV parking spaces shall be planned for carpooling and vanpooling. Carpool parking shall be provided where most convenient. Developer shall provide one standard sign post and Owner approved signage at each carpool vehicle stall or group of stalls.
 - (l) At least 2.5% of the new POV parking spaces shall be designed and constructed as electric vehicle (EV) charging stations. Within the required number of EV charging stations, EV parking shall be provided at 2.5% of handicapped accessible stalls. Developer shall provide:
 - (i) EV charging infrastructure for all EV parking spaces. EV charging Infrastructure shall include all power and data conduit to support Owner provided charging and pay stations, and switchgear or panelboards adequate to support the fully connected loads. The EV charging infrastructure system shall be sized to allow simultaneous charging of all installed stations.
 - (ii) Power and data cabling to 40% of the EV parking spaces. For panelboards or switchgear serving the remaining 60% of EV parking spaces, panelboards or switchgear cabinets and

busses must be sized to accommodate future feeders.
Breakers for future feeders are not required.

- (iii) One standard sign post and Owner approved signage at each EV parking space.
- (m) Developer shall determine, through the development of Project design, whether to leverage surface, structured or a mixed approach to achieving the required parking capacity.
- (n) Parking stall sizes:
 - (i) POV parking stalls shall include a mix of compact and standard spaces, with no more than 30% compact. Compact spaces shall be a minimum of fifteen (15) feet long, eight (8) feet wide. Standard spaces shall be a minimum of eighteen (18) feet long, nine (9) feet wide. Circulation aisle widths shall be a minimum of twenty-four (24) feet width.
- (o) Parking: Secured for Owner vehicles shall be sized as follows:
 - (i) 30 Spaces at twenty (20) feet long, twelve (12) feet wide, thirty (30) feet minimum circulation aisle width; and
 - (ii) 20 spaces at twenty-four (24) feet long, twelve (12) feet wide with ninety (90) degree parking, thirty-six (36) feet minimum aisle width.
- (p) For POV parking, payment points shall be distributed as follows: Provide one pay point per two hundred (200) spaces, with a minimum of one (1) pay point per lot or structure; maximum walking distance from pay point to furthest parking space shall be four hundred (400) feet. Parking pay station equipment shall be provided by Owner. Developer shall provide pay station infrastructure, including pad, power and data.
- (q) Signage: Install all necessary or code required signage and traffic markings for safe traffic operation and wayfinding. In addition, install one (1) standard sign pole for every thirty (30) stalls for Owner-provided informational signs. Coordinate location of Owner-provided signs with Owner.
- (r) All parking systems, whether surface parking lots or parking structures, shall be designed to provide a minimum of one (1) entry lane and one (1) exit lane for every 500 POV spaces.
- (s) In addition to the requirements set forth in Section 3.4.18.1(r), the spacing between parking system entrances and nearby intersections shall be sufficient to ensure that such intersections are not blocked by parking entrance vehicle queues during normal

hours of operation at the Project Site, not including Special Events. Developer shall, at Owner's request, demonstrate the length of parking entrance vehicle queues through an intersection design study, to be provided to Owner.

- (t) Parking systems shall be designed to operate without excessive vehicle queues, internal to such parking system, that impede or restrict vehicle parking maneuvering.

3.4.19.2 Surface Parking Lots

3.4.19.2.1 Parking areas shall be planned and laid out to facilitate anticipated usage patterns. For paid public lots, this will include provision for distributed payment points, payment stacking and waiting, and exit stacking, allowing for anticipated peak traffic flows related to class or other campus schedules. For Owner service vehicle parking lots, this will include provision for all required screening or security.

3.4.19.2.2 Connections shall be provided to the pedestrian and bicycle circulation network from the surface parking lots with sidewalks and bike paths. Connections shall also be provided to the transit network with shuttle stops and transit shelters as appropriate.

3.4.19.2.3 Parking lots may not be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements.

3.4.19.2.4 Parking Lot South of Bellevue Road

- (a) Development of a parking area south of Bellevue Road within the Project Site is permitted.
- (b) Parking areas located south of Bellevue Road shall be constructed in accordance with Area Data Sheet EX-10 Parking: Offstreet - South of Bellevue.
- (c) In addition to entrances from the Bellevue Road extension as shown in the Project Master Plan, the parking area shall have an entrance directly from Lake Road located at least three hundred (300) feet and no more than six hundred (600) feet south of the Bellevue Road/Lake Road intersection.
- (d) A landscaped buffer is required between the eastern boundary of the Lake Road right of way and the parking area south of Bellevue Road. The buffer shall be a minimum of ten (10) feet wide, and shall be landscaped to comply with LS2 landscaping requirements as set forth in Table 3.4.13.1.2 (General Landscaping Requirements), with 15 gallon container trees spaced at no greater than thirty (30) feet on center. The buffer shall run from the Bellevue Road/Lake Road intersection to the southern limit of the parking area south of Bellevue Road.

3.4.19.3 On Street Parking and Short Term Parking Spaces

On street and short term parking areas shall be planned and laid out to facilitate anticipated usage patterns, and shall be placed such that use does not interfere with pedestrian, bicycle or vehicular traffic flow or safety. Particular attention shall be paid to vehicle maneuvering and door opening. Short term and on street parking shall be in addition to the paid spaces required under Section 3.4.18.1 (General Parking Requirements) above.

- (a) On street parking shall not be permitted:
 - (i) within twenty-five (25) feet of an intersection;
 - (ii) fifteen (15) feet either side of a fire hydrant; and
 - (iii) within a minimum of twenty (20) feet approaching, and ten (10) feet departing a marked crosswalk or bus stop.
- (b) On street parking shall be parallel parking only, and parking spaces shall be a minimum of twenty-two (22) feet long. Longer spaces shall be provided if larger vehicles are planned.
- (c) Paved surface shall match any adjacent vehicular paving.

3.4.19.4 Parking Structures

3.4.19.4.1 As part of the design and development of the Project, Developer may evaluate the feasibility of designing and constructing parking structures, as required.

3.4.19.4.2 In the event that Developer, with the approval of the Owner, determines that one or more parking structures within the Project Site is feasible and appropriately supports the Campus Activities, Developer shall design and construct such parking structure(s) in accordance the Technical Requirements including any Applicable Data Sheets and the following requirements:

- (a) Parking structures shall comply, at a minimum, with the standards set forth in the following publications:
 - (i) Weant, Robert A. and Levinson, Herbert S., Parking (1990);
 - (ii) Urban Land Institute, The Dimensions of Parking (5th Edition); and
 - (iii) Institute of Transportation Engineers, Guidelines for Parking Facility Location and Design (May 1990).
- (b) Both above-ground and underground parking structures shall have a minimum useful life of sixty (60) years.
- (c) The maximum vehicular speed within parking structures shall be five (5) mph.

- (d) Vehicular circulation within each floor of a parking structure shall be no more than seventy-five (75) seconds per floor, when utilizing an average circulating aisle length of five-hundred (500) feet and an interior speed limit of five (5) mph. Circulation time may vary in the event circulating aisle length selected by Developer differs from five-hundred (500) feet.
- (e) The architectural design for parking structures shall follow the requirements set forth in the Technical Requirements and appropriately blend with the architectural design and concept adopted for the Buildings. Exposed portions of the parking structures (those portions not wrapped with active uses) shall be screened in a method compatible with the architecture of the adjacent Buildings.
- (f) Parking structures shall be integrated with the pedestrian, bicycle, and transit system networks. Design parking structures to support the overall Project Master Plan and not interfere with the publicly accessible outdoor spaces.
- (g) No parking structures shall be located near the Project Site boundaries. All parking structures shall be located within the interior of the Project Site.
- (h) Stairwells within parking structures shall be designed as separate vertical cores, using recesses, materials, or other design features to add architectural interest and break up the façade of the parking structure. All entries and stairwells shall be placed within the parking structures adjacent to circulation corridors, and designed to be easily identified, visually open, and to promote feelings of security and comfort.
- (i) All ceilings within the parking structure shall be painted white.
- (j) All parking garage structures shall include an automatic counting system to indicate whether the parking structure is "FULL" or "AVAILABLE."
- (k) Lights within parking structures shall be able to automatically dim to 50% when no vehicular movement is occurring or when no pedestrians are present.

3.4.20 Zones

Trash/Recycling Handling Yards, and Service Areas and Loading

- (a) Developer shall design and construct Nonassignable Spaces: Exterior: Trash/Recycling Handling Yards and Nonassignable Spaces: Exterior: Service Areas & Loading Zones Areas in accordance with the following requirements: Trash/Recycling Handling Yards, and Service Areas & Loading Zones Areas shall

be planned and laid out to facilitate anticipated usage patterns, and shall be placed such that use does not interfere with pedestrian, bicycle or vehicular traffic flow or safety. Particular attention shall be paid to vehicle maneuvering and reversing.

- (b) Trash/Recycling Handling Yards shall be provided for each Building, except where multiple buildings can access a single Trash/Recycling Handling Yard within fifty (50) feet of a service entrance and provided an adequate pathway independent of pedestrian and bicycle circulation is provided.
- (c) Trash/Recycling Handling Yards shall not be required for Buildings where all trash is handled by Trash Chute Rooms and no outside trash staging will occur.
- (d) On street loading shall not be permitted except for facilities requiring delivery no more than once per day by vehicle under fourteen thousand (14,000) pound unloaded weight. On street loading and unloading zones must be sized such that vehicles do not encroach into traffic lanes or emergency access lanes.
- (e) Trash/Recycling Handling, Yards and Service & Loading Zone Areas must be large enough to accommodate trucks and trailers as needed, such that vehicles do not encroach into traffic lanes or emergency access lanes.
- (f) Trash/Recycling Handling Yards and Service & Loading Zone Areas may not be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements.
- (g) Trash/Recycling Handling Yards, Trash Areas and Nonassignable Spaces: Exterior: Service & Loading Zone Areas shall be located away from Building entries, prominent pedestrian pathways and open space, and appropriate visual screening, such as landforms or landscaping, shall be used.

3.4.21 Additional Site Circulation Criteria

POV and service vehicle traffic is permitted along Scholar's Lane within the Existing Campus up to the Leo & Dottie Kolligian Library building traffic circle.

3.4.22 Borrow Site Requirements

3.4.22.1 Developer may excavate borrow material from the Borrow Site identified in Appendix 4-E (Borrow Site Map) of the Agreement. If Developer chooses to excavate borrow material from the Borrow Site, Developer shall comply with the environmental requirements in respect of the Borrow Site set forth in the Contract Documents.

3.4.22.2 Prior to the excavation of borrow material, Developer shall complete, for all planned excavation areas and for a 500' radius surrounding the planned excavation areas, the following and submit each item to the Owner for review in accordance with Section 2.6 (Work Submittal Review Process) of the Technical Requirements:

- (a) a topographical survey of existing surface profile on a one (1) yard grid to three (3) inches of vertical accuracy;
- (b) a soils profile survey Site that details the soil type and density, and for which each sampling depth shall reach the planned excavation depth, and performed at a minimum of one (1) per 100 SF;
- (c) a hydrological survey to identify primary water flows, including overland flow onto the planned borrow area;
- (d) a haul route and site disturbance map for of the Borrow Site. Disturbance to areas outside the immediate borrow areas and haul routes shall not extend further than 30 feet from the borrow pit and topsoil stock pile, as described in Section 3.4.21.3, and shall not extend further than 10 feet from the haul road; and
- (e) a restoration design in accordance with Section 3.4.21.5 and including planned topography and hydrology design.

3.4.22.3 Developer shall remove topsoil to a minimum depth of nine (9) inches and stockpile within the Borrow Site identified in Appendix 4-E (Borrow Site Map) of the Agreement. Developer shall manage the topsoil stockpile to ensure that topsoil quality, viability, properties and humidity are maintained. Developer shall:

- (a) avoid compaction of topsoil by excavation machinery during stripping;
- (b) mound topsoil no higher than four (4) feet high; topsoil shall not be stored in mounds for longer than 6 months;
- (c) cover of topsoil to prevent soil erosion and contamination by weeds;
- (d) prohibit construction vehicle compaction of topsoil stockpiles; and
- (e) monitor of topsoil to limit colonization by burrowing animals by promptly removing or blocking identified burrows or nesting sites.

3.4.22.4 When excavating borrow material, Developer shall ensure that:

- (a) cut slopes do not exceed one (1) foot vertical in three (3) feet horizontal during borrow operations; and
- (b) exposed slopes are protected from wind and water erosion.

3.4.22.5 Work in the Borrow Site shall only be permitted between 15 April and 15 October. Restoration, in accordance with Section 3.4.21.6 of the Technical Requirements, must be complete by 15 October each year.

3.4.22.6 Developer shall restore the Borrow Site in accordance with the following requirements:

- (a) re-grade pit bottom and sides to mimic original topography slopes and land forms. Restored slopes shall be no steeper than slopes in the pre-existing topographical survey performed as part of the requirement set forth in Section 3.4.21.2(a);
- (b) scarify pit bottom, as required, to loosen soil compacted by excavation operations. Use soil profile data obtained in accordance with the requirement set forth in Section 3.4.21.2(b) as the basis for restoration of compaction levels;
- (c) restore primary hydrology flows as determined by the topographic survey performed in accordance with Section 3.4.21.2(c);
- (d) install and maintain temporary erosion protection until vegetation is restored, and fill or re-seed erosion channels, as needed;
- (e) place topsoil from stockpile, including placing at original compaction levels per data obtained in accordance with the requirement set forth in Section 3.4.21.2(b) as the basis for restoration compaction levels;
- (f) hydroseed a native plant mix as approved by Owner; and
- (g) provide temporary irrigation to ensure germination and growth of plant material.

3.4.23 Cattle Fence

3.4.23.1 Prior to the commencement of the Construction Work, Developer shall install a barbed wire cattle fence in accordance with the following requirements:

- (a) the cattle fence shall be installed along the south and east sides of the Ancillary Site within five (5) feet of the limits of the Ancillary Site, as indicated in Appendix 4-B (Ancillary Site Map) of the Agreement;
- (b) if Developer determines that the Ancillary Site is not required for the performance of the Construction Work, or that only a portion of the Ancillary Site is required for the performance of the Construction Work, Developer shall install the cattle fence on the Project Site or the Ancillary Site, as applicable, south of any Developer activity to prevent cattle from entering;

- (c) subject to the location of the cattle fence, determined in accordance with Section 3.4.22.1 (a) and (b), Developer may utilize portions of the existing cattle fence located on the southern boundary of the Project Site;
- (d) Developer shall install access gates along the new cattle fence installed by Developer, or along the existing cattle fence along the southern boundary of the Project Site, in accordance with the specifications set forth in Section 3.4.22.1(h);
- (e) Barbed wire:
 - (i) Barbed wire fencing shall conform to ASTM A-121 Type I – Standard Double Strand Barbed Wire;
 - (ii) Barbed wire shall be a minimum 12½ gauge with a minimum 14 gauge two-point barbs spaced no more than five (5) inches;
 - (iii) The minimum protective coating shall be Class I galvanized per ASTM A-121; and
 - (iv) The minimum wire strand breaking strength shall be 850 pounds.
- (f) Wire attachments:
 - (i) Wire clips shall be galvanized 12 to 12½ gauge; and
 - (ii) 16 gauge galvanized wire is also permitted in place of wire clips;
- (g) Line Posts:
 - (i) Line posts shall be standard “T” or “U” section steel posts weighing no less than 1.33 pounds per foot of length, exclusive of anchor plate;
 - (ii) Steel posts shall be rolled from high carbon steel and studded, embossed, or punched for wire attachment with anchor plate.
 - (iii) The protective coating shall consist of hot-dip galvanized or one or more coats of high-grade, weather-resistant steel paint, or enamel applied and baked.
 - (iv) Post length must be at least 7 feet to construct a 48-inch high fence and be set solidly in the ground a minimum depth of two feet in deep soils.

- (v) On five (5) wire standard fences, maximum post interval shall not exceed 10 feet if no stays are used between post, or 20 feet if stays are used between posts at intervals not greater than 10 feet.
- (h) Corners, gates and brace posts:
 - (i) Corner braces are required at all points where the fence alignment has a change of 20 degrees or more and the pull is from two directions, and/or when the topography change is greater than eight (8) percent.
 - (ii) End braces are required where the fence ends and on both sides of gate openings.
 - (iii) Length shall be seven (7) to eight (8) feet minimum to provide for the construction of at least a 48-inch high fence and permit setting at least 36 inches in the ground.
 - (iv) Steel corner or brace posts with a minimum 2-3/8 inch diameter steel pipe or equivalent and weighing a minimum of 3.65 pounds per foot, with brace member welded to the posts.
 - (v) Posts to be set in concrete the entire depth using a “post mix.”
 - (vi) No concrete shall be needed if the post is welded to the compression brace.
 - (vii) When posts are backfilled with dirt, they will be centered in a hole at least 6 inches larger in diameter than the diameter of the post and tamped in four (4) to six (6) lifts up to ground level. When backfilled with concrete, posts will be centered in a hole that is a minimum of one (1) foot in diameter. The hole will be completely filled and crowned (mounded) at post base to prevent water from ponding around the post at ground level.
 - (viii) Bracing shall be required at all corners, gates and at all definite angles in the line fence. “H” braces or steel-welded single post end/angle (diagonal) braces shall be used. In straight sections, brace units (pull posts) shall be spaced at intervals not to exceed 1,320 feet. Horizontal braces can be two-inch new pipe (2” OD, min. 2.25 lb/ft) or angle iron (2” x 2” x 1/4”) installed not less than three feet above ground line and no higher than the top wire. A tension member composed of two complete loops of number 12-1/2 gauge double strand barbed or smooth wire, shall extend

from a point approximately six inches below the top of the brace post to ground level of the post being braced.

- (ix) For 5-strand barbed wire fences, the brace wire shall be attached to pull posts by two complete wraps around the post, wired, and ends tightly twisted around stretched wire at least six times to secure the brace and provide needed rigidity.
- (x) All posts shall be placed to the required depth and shall be firmly embedded so that there is less than 1 inch of horizontal movement at the top of post when a horizontal force of 80 lbs is applied.

3.5 SITE INFRASTRUCTURE AND UTILITIES

Developer shall design and construct the Infrastructure in accordance with the requirements of this Section 3.5.

3.5.1 Facility Services Design and Screening

3.5.1.1 The location and use of Facility services and Utilities shall not create visual or safety impacts or impede circulation and all Utility Devices shall be screened from Users' sight.

3.5.1.2 Facility services and Utilities shall be designed as integral elements of the overall design, and shall be located on managed access service streets, ensuring that circulation conflicts are not caused for Users.

3.5.2 Permanent Utilities

3.5.2.1 General Requirements

- (a) All Utilities within the Project Site, all Infrastructure, and all modifications to Existing Infrastructure resulting from Work, shall be designed and sized to accommodate the required capacity of the Existing Campus in addition to the required capacity of the Facilities within the Project Site, including Master Plan Only Spaces.
- (b) Underground Utilities shall have a minimum useful life of seventy-five (75) years.
- (c) Utility Metering:
 - (i) Each Utility within the Existing Campus to be extended into the Project Site to service the Facilities shall include a meter at the mainline point of connection to the existing Utility service within the Existing Campus that provides for the extension into the Project Site (the "Mainline Point of

Connection”). The meters shall be appropriate to the Utility served and shall be sufficient to measure consumption and supply conditions.

- (ii) All Utility services shall be provided with meters at individual Buildings to allow for the tracking and monitoring of individual Building usage.
 - (iii) Meters shall be Revenue Grade with accuracy of 0.2% or better. All meters shall be connected to the Building Management System for the Project, and shall be capable of continuous reporting.
 - (iv) For volume based utility services (water and gas) meter shall measure volume, flow and pressure. For electricity, meter shall measure phase volts, phase currents, neutral currents, ground currents, power consumption kWh, adjustable power demand kW, kVA & kVAR, Power Factor, and peak loads. For chilled water, meter shall measure volume, flow, pressure, supply and return temperature, total power (Btu) consumption and peak demand.
- (d) Utility points of connection with adequate capacity shall be provided at all designated future building locations. Points of connection shall include stub out, valve or blind flanges to allow for future connection without utility shut down, and without cutting into streets or other pavement. All future connections shall be marked with surface monument or manhole.

3.5.2.2 Utility Corridors

- (a) All main utility services shall be installed within dedicated utility easements (“**Utility Corridors**”).
- (b) Utility Corridors shall be a minimum of ten (10) feet wide and shall be readily accessible for service or repair, including overhead and peripheral clearance to allow for work by excavating and lifting equipment such as backhoes.
- (c) Utility Corridors shall be placed outside the mature dripline of all planned and existing trees.

3.5.2.3 Utility Devices

- (a) Utility Devices include any device or equipment that forms part of the Utility system, such as backflow preventers, transformers, fire hydrants, meters, pressure reducing station and other utility devices (“**Utility Devices**”).

- (b) Visible Utility Devices shall match Utility Devices on the Existing Campus in overall appearance, and shall be designed as integral elements of the overall design and housed within the building footprint or visually screened by architectural or landscape screening (e.g. within service yards) to minimize visual impacts or circulation conflicts for Users. Screening or location shall not impair the Utility Device function, access, or maintainability. Screening shall not be used for fire protection devices requiring high visibility.
- (c) Above grade Utility Devices shall be set on concrete pads sized to provide a minimum of three (3) foot hard working surface at any required access points.
- (d) The locations of Utility Devices, delivery areas, and trash collection areas shall be integrated into the building and landscape design concept. Locations shall be shown on design development site plans.
- (e) Utility Devices shall not be allowed near main entrances to a Building.
- (f) A minimum setback of three (3) feet is required for all Utility Devices and fire department connections located behind a curb so as to avoid vehicle impact. In the event that such Utility Devices or fire department connections are exposed to damage or vehicle impact, protection for such elements shall be provided per the California Fire Code.
- (g) Vaults shall not be located on primary walking paths and shall be shown on design development site plans.
- (h) The design location of Utility Devices or other Infrastructure devices that are visible to the Users shall be identified in the Work Submittal Review Process.
- (i) All above grade Utility Devices shall be painted or coated to protect them from corrosion and to minimize their visual presence. Utility Devices shall be of a uniform color and finish consistent with the color palette of Utility Devices implemented and utilized in the Existing Campus. Specific paint or coating shall be subject to the Owner's review and shall be consistent with current Owner's practices.

3.5.2.4 Alignment

- (a) Where applicable, all Utility Infrastructure shall be generally oriented to align with roadways or other corridors so as to not create conflicts or impediments to future construction. Corridors

shall be planned to allow for adequate space for maintenance and future lateral connections from individual projects.

- (b) Unless otherwise required by applicable Law, separation between water lines and other Utilities shall never be less than one (1) foot for Utilities.

3.5.2.5 Coatings and Coloring of Certain Utility Devices

All above grade Utility Devices shall be painted or coated to protect them from corrosion and to minimize their visual presence. Utility Devices shall be of a uniform color and finish consistent with the color palette of Utility Devices implemented and utilized in the Existing Campus. Specific paint or coating shall be subject to the Owner's review and shall be consistent with current Owner's practices.

3.5.2.6 Coordination of Utility Routing

- (a) As part of the construction documents Developer shall prepare a composite Utility plan depicting all Project Site Utilities for coordination purposes (a "**Composite Utility Plan**"). The Composite Utility Plan shall at a minimum identify key crossings, clearances between parallel lines, and locations of junction structures, and identify all vaults, boxes, or other appurtenances that might impact Site development.
- (b) All underground Utilities shall be identified as described in Section 3.5.2.3(h) to help prevent accidental damage during excavation and to facilitate locating Utilities in the future.
- (c) All non-metallic underground chilled water, domestic water and Purple Pipe System piping two (2) inches or larger shall be accompanied by a solid core #10 insulated copper tracer wire. The wire shall be fastened to the top of the pipe so as not to be displaced or broken during backfilling, such as by affixing the wire to the pipe with duct tape at approximately ten (10) feet intervals. Both ends of tracer wire shall be accessible at all utility valve boxes and manholes and shall be terminated on the top of the valve box.
- (d) Provide detectable warning tape for all underground Utilities (chilled water, Purple Pipe System, domestic water, sanitary sewer, gas, stormwater sewer, steam, electrical and telecommunication). Such detectable warning tape shall be permanent, bright colored, continuous printed plastic tape, intended for direct burial service; not less than six (6) inches wide by four (4) mils thick. Provide color coding appropriate to the utility with black printing reading "CAUTION (insert applicable Utility) BURIED BELOW". The tape shall be installed directly over the pipe, eighteen (18) inches to twenty-four (24) inches above the top of pipe. For concrete-encased high voltage electrical duct banks, provide one (1)

warning tape for each twelve (12) inches width of concrete duct bank or fraction thereof.

- (e) All piping shall be tested and inspected in accordance with AWWA standards. Piping for fire protection shall be tested in accordance with NFPA 24 and NFPA 13.
- (f) All piping utilized for the potable water system shall be disinfected and tested for bacteriological contamination prior to being put into service.
- (g) All underground piping and fitting materials shall take into consideration the acidity of the local soil conditions.
- (h) Backfill materials shall generally be granular in the vicinity of the pipe and non-expansive soils for the balance of backfill. Pea gravel is not an acceptable trench backfill material.
- (i) Trench excavation and backfill shall be such that water will not be allowed to follow the excavation to beneath Buildings.
- (j) A plug of impermeable material shall be placed at locations where trenches cross into areas of pavement or beneath Building slabs. The plug shall be at least two (2) feet in the direction of the trench and shall consist of either controlled density fill or non-corrosive native soil.

3.5.3 Utility Shutdown Times

3.5.3.1 Maximum Utility Shutdown Times

In the event a Utility shutdown that affects the Existing Campus is required for the performance of the Construction Work, in addition to complying with Section 2.4.7.3 (Utilities Management Services) of the Technical Requirements, Developer shall not exceed the maximum Utility shutdown times specified in Table 3.5.3.1 for each Utility.

Utility	Maximum Utility Shutdown Time for Utilities within the Northern Utility Loop	Maximum Utility Shutdown Time for Utilities within the Southern Utility Loop
Wastewater	No longer than 45 minutes.	Not applicable
Stormwater	No Utility shutdown time allowed during rain events. Otherwise, no restrictions.	No Utility shutdown time allowed during rain events. Otherwise, no restrictions.
Potable Water (including water for Fire Protection Systems)	No Utility shutdown time allowed during Core Times.	No Utility shutdown time allowed during Core Times.

Utility	Maximum Utility Shutdown Time for Utilities within the Northern Utility Loop	Maximum Utility Shutdown Time for Utilities within the Southern Utility Loop
Chilled water	No Utility shutdown time permitted, except as otherwise set forth in <u>Section 3.5.3.2</u> (Specific Chilled Water Utility Shutdown Times) Central Plant Expansion Work.	Not applicable ⁽¹⁾
Natural gas	No Utility shutdown time permitted.	No restrictions
Power	Four (4) hours during a Saturday or a Sunday, except as otherwise set forth in <u>Section 3.5.3.2</u> (Specific Chilled Water Utility Shutdown Times) during Central Plant Expansion Work.	Four (4) hours during a Saturday or a Sunday, except as otherwise set forth in <u>Section 3.5.3.2</u> (Specific Chilled Water Utility Shutdown Times) Central Plant Expansion Work.
Communication / IT	One (1) day during the summer session, on a Saturday or a Sunday. Facilities that have no redundant connections cannot be shutdown at any time.	One (1) day during the summer session, on a Saturday or a Sunday. Facilities that have no redundant connections cannot be shutdown at any time.
Note 1: No existing wastewater or chilled water Utilities within the Southern Utility Loop.		

Table 3.5.3.1: Maximum Utility Shutdown Times

3.5.3.1.1 Developer shall ensure that all Facilities and all buildings on the Existing Campus have emergency power during any power Utility Shutdown as required by applicable Law.

3.5.3.2 Specific Chilled Water Utility Shutdown Times

- (a) During the Central Plant Expansion Work, Developer shall comply with the specific shutdown times for the chilled water Utility set forth in Table 3.5.3.2 (Specific Chilled Water Utility Shutdown Times) as it affects the Existing Campus. Before the commencement of the Central Plant Expansion Work, and after concluding such Work, no shutdown time shall be permitted for the chilled water system serving the Existing Campus.

Days	Charge circuit (including chillers and cooling towers)	Distribution system (including TES tank and secondary pumps)
Monday through Friday	11 am - 6 pm	10 pm – 9am
Saturday and Sunday	10 am - 8 pm	10 pm – 9 am

Table 3.5.3.2: Specific Chilled Water Utility Shutdown Times

- (b) When connecting to the existing chilled water infrastructure at a point other than directly at the Central Plant, Developer shall ensure that the existing system is capable of accommodating the additional flow without exceeding Best Management Practices for flow velocity and pressure drop, in addition to the assessment of the plant operation itself.
- (c) Sequencing of the connection to the existing chilled water infrastructure must be approved by the Owner. Developer shall incorporate a filter bypass that can facilitate the flushing of the extended chilled water system while minimizing the risk of Debris being drawn into the existing system.

3.5.3.3 Specific Power Utility Shutdown Times

- (a) During the Central Plant Expansion Work, Developer shall comply with the following specific shutdown restrictions for the electric power Utility as it affects the Existing Campus:
 - (i) normal power shall not be shutdown except during the summer, break, winter break or spring break, each as identified in the Owner's academic calendar at the time of the shutdown, and provided the shutdown occurs between the hours of 11pm-3am;
 - (ii) stand-by power shall not be shutdown except between the hours of 8pm-6am; and
 - (iii) normal power shutdown and stand-by power shutdown shall not occur simultaneously and must be separated by a 24 hour period.
- (b) Before the commencement of the Central Plant Expansion Work, and after concluding such Work, the shutdown times for the electric power Utility set forth in Table 3.5.3.1 (Maximum Utility Shutdown Times) shall apply.

3.5.4 Utility Shutdown Plan

- (a) As part of the PMP, Developer shall prepare and submit to Owner for its review and approval a plan describing the following:

- (i) affected Utilities;
 - (ii) phasing of Utility Adjustments within the Project Site;
 - (iii) shutdown duration (in compliance with Table 3.5.3.1 (Maximum Utility Shutdown Times);
 - (iv) impacts to Existing Campus, if applicable;
 - (v) any bypass or temporary Utilities required during Utility Adjustments; and
 - (vi) any other information Owner may require in advance of such Utility Adjustments or shutdown.
- (b) Developer shall also provide a detailed plan that specifically demonstrates the shutdown approach and sequencing to the chilled water and electric power Utilities while performing the required Work for the Central Plant Expansion, while observing the requirements of Section 3.5.3.1 (Maximum Utility Shutdown Times) of these Technical Requirements.

3.5.5 Temporary Utilities

3.5.5.1 General Requirements

- (a) Developer shall obtain temporary Utilities for all Construction Work from the Owner or directly from Utility Owners. Developer shall perform all work necessary to connect to Utilities for temporary usage and shall provide and maintain any necessary temporary structures required in connection with the temporary Utilities.
- (b) Developer shall meter temporary Utility usage sourced from the Owner through connections to Owner's existing Utility services. Such connections shall be coordinated with the Owner's Authorized Representative.
- (c) Developer shall submit to Owner for Owner's review and approval drawings and plans for temporary Utilities for the Construction Work.
- (d) Developer shall maintain and operate all temporary Utility systems to provide continuous service.
- (e) Developer shall modify and extend existing Utility systems, as required, during the performance of the D&C Work.
- (f) The use and methods of installation of temporary Utilities shall not create unsafe conditions or violate applicable Law.

- (g) The installation of temporary Utilities within the Existing Campus shall not be permitted, unless otherwise approved by the Owner.
- (h) Developer shall submit all plans for temporary Utilities to the Owner for review and approval in accordance with Section 2.6 (Work Submittal Review Process) of the Technical Requirements.

3.5.5.2 Removal and Reconditioning of Temporary Utilities

- (a) All temporary Utilities and associated temporary structures shall be promptly removed at the completion of the Construction Work for which such temporary Utilities and associated temporary structures were required.
- (b) All Utilities shall be restored to their original condition at the completion of Work.
- (c) All Facilities affected by the removal of temporary Utilities shall be patched and restored as required to their original conditions.

3.5.5.3 Temporary Fire Protection

- (a) During the Construction Period, Developer shall conform to all applicable Law for all temporary fire protection and:
 - (i) ensure that no burning is performed on the Work Site;
 - (ii) provide and maintain fire protection equipment including extinguishers, fire hoses, and other equipment as necessary for proper fire protection during the course of the D&C Work;
 - (iii) use fire protection equipment only for extinguishing fires, or as required by applicable Law; and
 - (iv) locate fire extinguishers in field offices, storage sheds, tool houses, other temporary buildings, and throughout the Project Site, as required by applicable Law.
- (b) Where construction demolition is performed, Developer shall provide one (1) multi-purpose dry chemical fire extinguisher for each 3,000-square feet of building floor area, at a minimum. Such fire extinguishers shall be located so that a person never has to walk more than seventy-five (75) feet to obtain one. The minimum size for such fire extinguishers shall be 4A:20BC (10 pound ABC). Fire protection equipment shall only be utilized for fighting and extinguishing fires. Any additional fire extinguishers required for the Project throughout the Term are to be provided by Developer.

- (c) Developer shall assign a qualified person to maintain fire protection equipment, institute fire prevention measures, direct the prompt removal of combustible and waste materials from the Project Site, and be a liaison with the Owner's Authorized Representative, the Designated Campus Fire Marshal and any other such Governmental Entity, as required (the "**Fire Safety Representative**"). The Fire Safety Representative shall report to Developer's Health and Safety Manager.
- (d) Prior to the commencement of Work, Developer shall organize a mandatory safety meeting. The attendees for such meeting shall, at a minimum, include the Owner's Authorized Representative, a representative of the Designated Campus Fire Marshal, Developer's Construction Manager, Developer's Health and Safety Representative and Developer's Fire Safety Representative.
- (e) Developer shall instruct its personnel on fire prevention measures, location of fire extinguishers and the procedures for dealing with fire incidents within the Project Site.
- (f) Vehicles or storage of materials within the Project Site shall not obstruct, block, damage, render useless any fire hydrants, fire department connections, fire alarm boxes or fire access. Developer's Authorized Representative shall notify the Owner's Authorized Representative and Designated Campus Fire Marshal of any and all fire access closures or disruption of Utility services to fire hydrants, fire department connections or fire alarm boxes.
- (g) Developer's Authorized Representative shall notify the Owner's Authorized Representative and Designated Campus Fire Marshal of any scheduled shutdown or impairment of any fire alarm or fire protection system. Such notification shall be five (5) Business Days in advance.

3.5.5.4 Temporary Water – Additional Requirements

- (a) Intentionally deleted.
- (b) In the event that any water is obtained from an Existing Campus fire hydrant, the hydrant valve shall not be used as a control valve. The use of a hydrant wrench for such instances is required and the use a pipe wrench is not allowed. Developer shall provide all necessary valves to control the flow of water.
- (c) For all temporary water installations, Developer shall:
 - (i) utilize a reduced pressure backflow preventer at all connections to Existing Campus' system, including fire hydrants;

- (ii) install in accordance with California Administrative Code, Title 17, Section 7603(c), and test immediately after installation by a certified tester in accordance with Title 17, CAC, Section 7605(d);
- (iii) install piping with taps located so that water is available throughout the Project Site by the use of hoses, such piping and fittings shall be protected against freezing; and
- (iv) provide potable water in accordance with the regulatory requirements for potable water and with applicable Law.

3.5.6 Water

3.5.6.1 Stormwater

Developer shall design and construct a stormwater management system at the Project Site in accordance with the following requirements:

- (a) All stormwater management systems shall meet all regulatory requirements including the NPDES Construction General Permit, NPDES Phase 2 MS4 General Permit (the Existing Campus is a regulated non-traditional MS4), California Department of Fish and Game, and Army Corps of Engineers.
- (b) Any stormwater discharge into MID canals shall comply with the Merced Irrigation District (MID) Drainage Contract. In particular, combined discharge flow rates from both the Existing Campus and Project Site shall not exceed the two hundred and twenty-five (225) gpm stipulated in the agreement.
- (c) Rate and Flow
 - (i) The stormwater management system shall provide the necessary combination of detention and retention such that there is no increase in peak flow rate or total volume of discharge from the Project Site and Existing Campus combined for up to the ninety-fifth (95th) percentile twenty-four (24)-hour storm.
 - (ii) The stormwater management system shall be capable of conveying up to the ten (10)-year, twenty-four (24)-hour event without nuisance flooding or surcharging of any pipe system. Specific flow rates are to be determined by individual watershed areas and times of concentration.
 - (iii) The stormwater management system shall be capable of detaining up to the one hundred (100) year twenty-four (24)-hour storm on site to accommodate MID emergency conditions.

- (d) Conveyance
 - (i) Drainage inlets shall be sized to accommodate a minimum of a ten (10)-year storm event.
 - (ii) Open channel conveyances shall be sized to convey a twenty-five (25)-year storm event without overtopping of channel banks.
 - (iii) The stormwater system shall be capable of conveying a one-hundred (100)-year, twenty-four (24)-hour storm without causing the flooding of any Facility.
- (e) Overland conveyance may be used to convey larger storm events. At least six (6) inches of freeboard shall be maintained between the finished floor of any Building and the highest anticipated water surface elevation during a one-hundred (100)-year event.
- (f) To the extent possible, natural open channels shall be utilized to convey stormwater. These should be considered for local drainage as well as along greenway corridors.
- (g) Developer shall evaluate the appropriate use of LID methods as may be best suited to their individual topography, soils, and site program elements.
- (h) Where the Construction Work impacts the stormwater management system of the Existing Campus, Developer shall ensure that the Existing Campus is served by a stormwater management system that is compliant with the requirements of this Section 3.5.6.1.

3.5.6.2 Potable Water

Developer shall design and construct a potable water system for the Facilities in accordance with the following requirements:

- (a) Developer shall base its potable water system design on a connection to the existing potable water system within the Existing Campus.
- (b) For the design of the potable water system, Developer shall only consider water storage, including potable water reservoirs and supplies within the Project Site or the Existing Campus.
- (c) Developer shall perform a flow and pressure test of the existing potable water system prior to connecting to any connection point within the Existing Campus or the Project Site to ensure that such connection will successfully serve the Facilities without affecting the Existing Campus potable water service.

- (d) Developer shall provide a full potable water system to service the Facilities to meet flow and pressure requirements as determined by the CBC and the Designated Campus Fire Marshal.
- (e) The initial design for the potable water system shall be based on Project design and a maximum monthly demand for water on the Existing Campus of 11,947,804 gallons. The potable water system shall, at a minimum provide:
 - (i) no reduction in capacity or pressure for domestic or irrigation demand from the Existing Campus;
 - (ii) adequate flow and pressure for the domestic and irrigation demand for the Facilities; and
 - (iii) two thousand (2,000) gpm of fire flow for a period of four hours in addition to baseline domestic and irrigation water demand.
- (f) If the water flow and pressure requirements determined in accordance with Sections 3.5.6.2 (d) or (e) of the Technical Requirements indicates that an additional water storage tank is required to support the Project, or if the Designated Campus Fire Marshall requires an additional water storage tank, then the acquisition and installation of the new tank will be implemented as an Owner Change in accordance with Section 11.1 (Owner Changes) of the Agreement.
- (g) If an additional water storage tank is not needed to ensure compliance with the requirements of Sections 3.5.6.2 (d) or (e) of the Technical Requirements, then Developer shall provide a location for an additional water storage tank in the Project Master Plan in accordance with Section 3.4.1.2.16 (Water Storage Tank) of the Technical Requirements.
- (h) The potable water infrastructure shall be developed in a manner to allow the successful implementation of the water conservation strategies defined within the Campus Water Action Plan.
- (i) All potable water lines greater than three (3) inches shall be installed within Utility Corridors.
- (j) Flame cutting of pipe by means of oxyacetylene torch shall not be permitted.
- (k) In the event mechanical restraints are utilized, provide a number of such mechanical restraints and pipe length per manufacturer's table at changes in pipe direction, changes in pipe sizes, dead end stops and at valves. Thrust blocks shall be explicitly shown on the Design Documents and Plans, including location and thrust block

size and be the minimum size necessary to provide restraint. Provisions shall be made to ensure that pipe joints, fittings and valves are not covered by the thrust block concrete.

- (l) The following pipe materials are permitted:
 - (i) Main Lines – PVC C900 DR14 Class 200 or HDPE Pressure Class 200 DR9; and
 - (ii) Branch Lines – Copper, lead free Brass, and PVC C900 DR14 Class 200.
- (m) Due to the corrosive nature of soils within the Project Site, ductile iron, including coated or wrapped ductile iron, is not permitted except at transitions to above grade piping.
- (n) High-Density Polyethylene (HDPE) piping shall be joined by socket fusion method.

3.5.6.3 Purple Pipe System

Developer shall design and construct a Purple Pipe System in accordance with the following requirements:

- (a) The Purple Pipe System shall be in accordance with the Campus Water Action Plan. The Purple Pipe System shall be fed from, and connected to the purple pipe system located on the Existing Campus.
- (b) The Purple Pipe System shall be used to feed the landscaping needs of the Project, in accordance with Section 3.4.13 (Landscape Design Requirements) of the Technical Requirements.
- (c) Developer shall develop and implement an integrated water management strategy that leverages both retained stormwater and the recharging of the local aquifer as potential primary sources for the Purple Pipe System. Developer has no obligation to provide a supply of reclaimed water. Developer shall not be permitted to connect to the Existing Purple Pipe System without prior written approval from the Owner's Authorized Representative.
- (d) Developer shall provide, at a minimum, one (1) point of connection for a future Purple Pipe System along the southern boundary of the Project Site.
- (e) All Purple Pipe System lines greater than three (3) inches shall be installed within Utility Corridors.
- (f) All Purple Pipe System piping shall be purple PVC pipe and have permanent wording "CAUTION RECLAIMED WATER" in two (2)

rows, approximately one hundred and eighty (180) degrees apart, in the longitudinal direction of the pipe. The warning message shall be repeated every twenty-four (24) inches continuously along the pipe.

- (g) Purple Pipe System lines not installed in accordance with this Section 3.5.6.3 shall be marked with a permanently affixed purple warning tape bearing the continuous wording "CAUTION RECLAIMED WATER." The tape shall be wrapped around the lines in a manner that produces a uniform and smooth fit, free of irregularities.

3.5.6.4 Wastewater

3.5.6.4.1 General Requirements

Developer shall design and construct a wastewater system to adequately support the needs of the Project in accordance with the requirements of this Section 3.5.6.4 (Wastewater).

- (a) The design and construction of a Black Water treatment plant, or treatment otherwise of any Black Water within the Project Site is strictly prohibited.
- (b) The wastewater system shall connect to the Existing Campus wastewater piping. The point of connection shall be determined by Developer. Any connection to the Existing Campus wastewater system shall retain at least 50% spare capacity in the overall system. The design of all sewer main lines shall be based on the Project Master Plan.
- (c) All sewer lateral lines shall be designed to comply with the following design criteria:
 - (i) design for a minimum flow velocity of two (2) feet per second at peak daily flow; and
 - (ii) design pipe capacity shall be for no more than one half ($\frac{1}{2}$) full flow;
- (d) Where an existing sewer main is to be extended, Developer shall remove the existing plug, cleanout or rodding inlet and install a manhole. The main may be extended without the installation of a manhole only if the new sewer section is on the same line and grade, the pipe size and material are the same.
- (e) Sanitary sewer manholes shall be placed in locations congruent to any future build and align with roadway or alley intersections.

- (f) Connections to trunk sewers shall be made so that the invert grade of the new main will be no lower than the crown of the trunk sewer.
- (g) Where laterals are the same size as the main, connection must be made with a manhole. All connections to the main shall have a cleanout.
- (h) Construction of sewer force mains shall conform to applicable Law for water mains. Any sewer force mains shall be laid with a constant slope toward the pump station to allow for complete draining of the pipeline. Locator boxes shall be placed at every horizontal change in alignment or a maximum of every 500 feet. Boxes shall conform to valve box requirements with the lids clearly marked "SEWER."
- (i) Horizontal and vertical separation from potable water lines must conform to the State of California, Department of Health Services, "Criteria for the Separation of Water and Sanitary Sewer."
- (j) The following pipe materials for sewer infrastructure are permitted:
 - (i) SDR 26 PVC with gasketed bell and spigot joints;
 - (ii) RCP with gasketed bell and spigot joints; or
 - (iii) HDPE DR-17 with electrofusion joints.
- (k) In general, sewer mains shall be designed in straight street sections to run parallel to the street centerline. All mains must have a minimum clearance of five (5) feet from all Buildings.
- (l) In curved streets, design the sewer alignment generally on one side of the centerline to allow installation of other Utilities without using transverse crossings. The alignment of sewer mains shall not be within one (1) foot from the back of curb.
- (m) Vertical curves or bend fittings in gravity sewer mains are not allowed.
- (n) A manhole is required at every horizontal or vertical change in alignment.
- (o) Student Life: Central Dining Areas, Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep –Large, Academic: Office: Academic Leadership Office: Kitchen: Serving/Prep -Small, and Student Life: Athletics: Concessions must have a grease interceptor installed outside the Building in an area accessible for service vehicles.

- (p) Trash enclosures and other outdoor pad areas used for washing shall be plumbed to the sanitary sewer system at a grease interceptor.

3.5.6.4.2 Sewer Lift Stations

- (a) Lift stations shall not be allowed where an acceptable alternative gravity route exists.
- (b) All pumps, regardless of station type, shall be non-clogging and capable of passing a minimum three (3)-inch diameter sphere.
- (c) Lift stations are not allowed within the street.

3.5.6.5 Water for Fire Protection Systems

Developer shall design and construct all infrastructure required to supply water to fire protection systems, including all fire protection Utility Devices within the Project Site, as well as fire protection systems within the Buildings, in accordance with the following requirements:

- (a) Developer shall base its design for the required infrastructure for fire protection within the Project Site on a connection to the existing potable water system within the Existing Campus. The usage of potable water for fire protection infrastructure includes required fire protection Utility Devices within the Project Site as well as fire protection systems within the Buildings.
- (b) Developer shall perform a flow and pressure test of the existing potable water system prior to connecting to any connection point within the Existing Campus or the Project Site to ensure that such connection will successfully serve the Work without affecting the Existing Campus potable water service.
- (c) The location of fire department connections shall be subject to the approval of the Designated Campus Fire Marshal, as required in Section 2.6.3.4.2 of the Technical Requirements.
- (d) Fire department connections and fire hydrants shall be located not less than forty (40) feet from Buildings or any other structure. The fire department connection shall front the street of primary fire department vehicular access and shall be located within twenty-five (25) feet of a fire hydrant. Fire department connection inlets shall be located thirty (30) to thirty-six (36) inches above grade on street front and as measured at all inlets within a three (3)-foot radius. Where conditions do not permit, the fire department connection shall be placed where it will be readily accessible in case of fire and not liable to injury.

- (e) All fire hydrants, post indicator valves, and other fire related Utility Devices, including fire department connections shall be clearly visible from the street. In addition, fire hydrant locations shall be indicated by reflective blue dot street markers as required by the Designated Campus Fire Marshal. Blue dots shall be placed within the center of the traffic lane adjacent to the fire hydrant.
- (f) The ports of any wet standpipe fire department connections that are accessible to the Users shall be protected with Knox style caps to prevent vandalism. Otherwise, metal caps are acceptable.
- (g) An inspection of underground installation, back flush, and hydrostatic test shall be conducted by Developer and witnessed by a representative of the Designated Campus Fire Marshal prior to backfill.
- (h) Developer shall obtain NFPA 24 inspection and installation certificates prior to acceptance testing and have them signed off by the Designated Campus Fire Marshal immediately after acceptance testing and approval.
- (i) Maintain a three (3)-foot clear radius around the fire department connection. Grade variation within this radius shall not exceed 1:12. The fire department connection shall be arranged so that hose lines can be ready and conveniently attached to inlets without interference from any nearby objects including Buildings, structures, fences, posts, landscape planting, or other fire department connections.
- (j) The fire department connection shall be painted with two (2) coats of reflective paint. Such paint shall be, without exception, red with a minimum visual light reflectance value of 90%. The FDCs and PIVs shall be red. FDCs and PIVs shall be stenciled with the building name of which it serves. Letters shall be one (1) inch in size of white reflective paint.
- (k) All piping shall be hydrostatic-pressure tested in accordance with the Technical Requirements, and the most recently adopted edition of NFPA 24 as amended, in the California Adoption. Underground piping shall be center-loaded and all fittings, joints, strapping, and thrust blocking shall be exposed for hydrostatic pressure testing and inspection per NFPA 24.
- (l) Fire hydrants shall be placed throughout the Project Site at a distance of no more than three hundred (300) feet.

3.5.7 Central Plant Expansion

3.5.7.1 General Requirements

3.5.7.1.1 Developer shall design and construct an upgrade and expansion to the Central Plant in accordance with this Section 3.5.7 (Central Plant Expansion), including upgrades to the chilled water distribution system and the electric power distribution system and any other supporting Infrastructure required for the expansion (collectively, the “**Central Plant Expansion**”).

3.5.7.1.2 Developer shall determine:

- (a) the required temporary capacity for chilled water pumps and electric power to be supplied by the Central Plant during construction of the Central Plant Expansion to ensure uninterrupted provision of chilled water and electric power to the Existing Campus and to any Facilities that achieve Occupancy Readiness prior to Occupancy Readiness of the Central Plant Expansion; and
- (b) the required final capacity for chilled water pumps and electric power to be supplied by the Central Plant to ensure uninterrupted provision of chilled water and electric power to the Existing Campus, to the Facilities and to the Master Plan Only Spaces (except, with respect to chilled water only, the Arena Master Plan Only Space identified in Appendix 1-A (Program Summary) of the Technical Requirements).

3.5.7.1.3 Developer shall design and construct the Central Plant Expansion to meet the requirements of the Existing Campus, the Facilities and the Master Plan Only Spaces (except, with respect to chilled water only, the Arena Master Plan Only Space identified in Appendix 1-A (Program Summary) of the Technical Requirements).

3.5.7.2 Architectural Requirements

Architectural finishes, materials and color palettes utilized in the design and construction of the Central Plant Expansion must harmonize with materials and finishes used on the existing Central Plant and other buildings within the Existing Campus.

3.5.7.3 Chilled Water Distribution

3.5.7.3.1 Existing Capacity, Demands and System Information

Table 3.5.7.3.1 defines the current capacity of the existing chilled water system within the Central Plant (the “**Existing Chilled Water System**”) and the current demands of the Existing Campus:

Criteria	Current
Existing Chiller Capacity	5,000 tons

Criteria	Current
Peak demand of Existing Campus	2,700 tons
Maximum flow rate from TES tank	6,250 gpm @ 80 ft of head
Peak daily cooling capacity of Existing Campus	24,000 ton-hours
TES storage temperature	37°F
Chilled water supply temperature	39°F (initial set point)
TES warm water temperature	65°F
Assumed delta temperature to achieve TES cooling capacity	26°F
Thermocline criteria	Bottom of thermocline zone: 2°F above the chilled water supply temperature. Top of thermocline zone: 2°F below the warm water temperature.
Capacity of existing TES tank (volume)	2,000,000 gallons
Capacity of existing TES tank (ton-hrs)	30,000 ton-hours
Sub-metering at Central Plant	None
TES charge window	Midnight – 8am

Table 3.5.7.3.1: Existing Chilled Water System Capacity, Demands and System Information

3.5.7.3.2 Expanded Chilled Water System Capacity Requirements

Table 3.5.7.3.2 defines the required capacity of the chilled water system after completion of the Central Plant Expansion (the “**Expanded Chilled Water System**”):

Capacity Criteria	Requirement
Minimum chiller capacity	5,000 tons
Minimum secondary chilled water pump duty	11,600 gpm
TES storage temperature	37°F
Chilled water supply temperature	39°F (initial set point)
Sub-metering at Central Plant	Thermal meters on supply branches to Existing Campus and to Facilities circuits
TES charge window	10pm – 9am

Table 3.5.7.3.2: Expanded Chilled Water System Capacity Requirements

3.5.7.3.3 Expanded Chilled Water System Design Requirements and Constraints

- (a) Developer shall upgrade the existing chilled water pumps within the Central Plant, and add chilled water pumps if required, to ensure uninterrupted provision of chilled water to the Existing Campus, to the Facilities and to the Master Plan Only Spaces (except the Arena Master Plan Only Space identified in Appendix 1-A (Program Summary) of the Technical Requirements).

- (b) Developer shall upgrade and configure the existing secondary chilled water pumps within the Central Plant, and add chilled water pumps if required, to ensure minimum redundancy at 66% of the peak flow.
- (c) Developer shall verify, and modify if necessary, the chilled water piping to facilitate the concurrent use of the existing chillers and existing TES tank as the source of chilled water for both the Existing Campus and the Facilities.
- (d) Developer shall take into consideration the existing chilled water sequence of operations set forth in Appendix 9 (Existing Chilled Water Sequence of Operations) of the Technical Requirements when developing the upgraded chilled water pumping strategy, and shall provide the Owner with a summary of the proposed changes to the existing chilled water sequence of operations as a result of Developer's design. Developer shall provide valved points of connection to allow for connection to the Master Plan Only Space TES tank and pump house contemplated in Section 3.4.1.2.12 (Chilled Water System TES Tank and Pump House).
- (e) Any new chilled water pumps required to achieve the expanded pumping capacity shall be located either within the Central Plant building or directly adjacent to it in the "Expansion Area" identified in Appendix 4-D (Central Plant Expansion Site Map) of the Agreement.
- (f) Developer shall submit the following with Developer's schematic design utility submittal as indicated in Appendix 4-D (Utility Submittals) of the Technical Requirements:
 - (i) Anticipated peak day chilled water demand profile for the Project; and
 - (ii) Anticipated maximum peak chilled water demand for the expanded UC Merced campus at full buildout of the Facilities and the Master Plan Only Spaces (except the Arena Master Plan Only Space identified in Appendix 1-A (Program Summary) of the Technical Requirements).

3.5.7.3.4 Expanded Chilled Water System Sequence of Operations

The Owner will implement any required changes to the sequence of operations for the Expanded Chilled Water System.

3.5.7.3.5 Chilled Water Metering Requirements

- (a) Developer shall install thermal meters and sensors on the supply and return pipes from the Expanded Chilled Water System to both the Existing Campus and the Project Site.

- (b) Developer shall install thermal meters and sensors on the supply and return pipes from the Existing Chilled Water System to the Project Site, as close as practical, but within 50 feet of each point off connection.
- (c) Thermal meters shall be able to measure and record the following information through connection to the BMS:
 - (i) Supply and return temperatures;
 - (ii) peak and current chilled water flow; and
 - (iii) cooling consumption (current, daily, annual).
- (d) Developer shall make meter information available to the Owner for remote monitoring of the chilled water system.

3.5.7.3.6 Expanded Chilled Water System Materials and Equipment Requirements

Developer shall utilize the materials and equipment set forth in Table 3.5.7.3.6 for the construction of the Expanded Chilled Water System.

Equipment	Requirements
Pumps	Manufacturer: PACO Model Name: KP Series Other specific requirements: Variable Speed
Water Flow Meters	Manufacturer: Onicon Model Name: F-1200 Series Other specific requirements: Connected to DDC
VFDs	Manufacturer: Allen-Bradley Model Name: 6-Pulse VFD w/ DC Link Reactor, or alternative of equal or better quality and specifications
Controls	Open Architecture: BACNet

Table 3.5.7.3.6: Expanded Chilled Water System Materials and Equipment Requirements

3.5.7.4 Power Distribution

3.5.7.4.1 Existing Capacity, Demands and System Information

Table 3.5.7.4.1 defines the current electric power capacity of the Central Plant and the current electric power demands of the Existing Campus:

Capacity Criteria	Current
Number of Incoming PG&E feeds to Central Plant	2

Capacity Criteria	Current
Incoming PG&E Supplies	U1 (El Capitan) Substation Capacity, 8.4 MW U2 (Wilson) Substation Capacity, 6MW
PG&E Feeder Capacity	U1 (El Capitan) Cable Capacity, 490A, 10.6MW (3-750kcmil aluminum cable) U2 (Wilson) Cable Capacity, 565A, 12.2MW (3-1000kcmil aluminum cable)
Campus Feeder Capacity from Splice Box (located at the east end of Lake Road as shown on the Utilities Map) to Main Switchboard at the Central Plant	U1 (El Capitan) Cable Capacity, 305A, 6.6MW (3-750kcmil aluminum cable) U2 (Wilson) Cable Capacity, 345A, 7.5MW (3-1000kcmil aluminum cable, 6-circuit)
Main Switchboard Capacity	Medium Voltage Switchgear A (Fed by U1) 12.47 KV / 2,000 A. One available space for circuit breaker. Space for three additional switchgear cubicles. Medium Voltage Switchgear B (Fed by U2) 12.47 KV / 2,000 A. No available spaces for breakers in existing switchgear. Space for three additional switchgear cubicles.
PG&E Allocated Capacity	460 A, which can support approximately 8.4 MW at 12.47 KV
Existing Campus peak Normal Power Demand (based upon 2017 campus load projection)	7. 2MW (off peak), 5.2MW (peak)
Estimated available capacity for 2020 Development	1.2MW (off peak), 3.4 MW (peak)
Existing generator capacity	2 no. 1 MW / 480V generators plus 1 MW/480V backup.
Loading on existing generator capacity	94%
Generator support	Life Safety and standby loads

Table 3.5.7.4.1 Existing Electric Power Capacity, Demands and System Information

3.5.7.4.2 Expanded Electric Power Supply Capacity Requirements

Developer shall reconfigure and expand the electric power capacity of the Central Plant, as described in [Table 3.5.7.4.1](#), to ensure the electric power capacity of the Central Plant meets the requirements set forth in [Table 3.5.7.4.2](#), [Section 3.5.7.1.2\(b\)](#) and [Section 3.5.8](#) (Power) of the Technical Requirements. Developer shall implement all necessary upgrades to the existing 12 KV Main Switchgear.

Capacity Criteria	Requirement
Loading on generator capacity	< 80%
Generator support	Life Safety and standby loads

Table 3.5.7.4.2: Expanded Electric Power Capacity Requirements

3.5.7.4.3 Expanded Electric Power System Materials and Equipment Requirements

Developer shall utilize the materials and equipment set forth in [Table 3.5.7.4.3](#) for the construction of the expanded electric power supply system.

Equipment	Requirements
12 KV Main Switchgear	Manufacturer: Siemens Model Name: Tiastar MCC, or alternative of equal or better quality and specifications

Table 3.5.7.4.3: Expanded Electric Power System Materials and Equipment Requirements

3.5.8 Power

Developer shall design and construct all Infrastructures required for an electrical power distribution system that adequately supports the needs of the Project in accordance with the following requirements:

- (a) Developer shall submit to the Owner all calculations and documentation required for Owner coordination with PG&E on any required PG&E upgrades of PG&E's utility substation and utility feeders.
- (b) Developer may connect to the electrical Utilities on the Existing Campus to provide service to some or all of the Facilities, in which case Developer shall:
 - (i) implement all necessary upgrades to the Owner's existing feeders from the splice box located at the east end of Lake Road as shown on the Utilities Survey at Appendix 12 of the Agreement, to the existing 12 KV Main Switchgear. Developer may use the spare conduits in the existing electrical ductbanks housing the existing 12.47kV feeders; however, Developer shall reserve for the Owner's future use at least 2 spare conduits along the east-west direction between the east end of Lake Road as shown on the Utilities Survey at Appendix 12 of the Agreement and the existing 12 KV Main Switchgear. The 2 spare conduits reserved for the Owner's future use shall not include any spare conduits needed for the Master Plan Only Spaces;
 - (ii) Submit to the Owner all documentation required for Owner coordination with PG&E associated with Developer's upgrades of the Owner's feeders;
 - (iii) connect to the existing switchboard and provide a new feeder to each Facility's new service transformer;
 - (iv) provide metering to any new connection taken from the existing 12 KV Main Switchgear; and
 - (v) configure the electrical power distribution system within the Project as one or more loops. Each loop shall include a

normally-open, manually operated inter-tie switch to allow each leg to function independently under normal operations. Each new Facility shall be provided with feeds from the primary loop.

- (c) Developer shall provide emergency and standby power sources or generators as specified in the Area Data Sheets in accordance with the following requirements:
 - (i) power sources or generators may be provided centrally or on a Facility by Facility basis; and
 - (ii) emergency and standby sources shall come from an independent and reliable power source and shall not include either of the incoming PG&E feeds described in Table 3.5.7.4.2 of the Technical Requirements or the central emergency and standby power source on the Existing Campus.
- (d) The inclusion of the Facilities on the Existing Campus' electrical system shall not adversely affect the ability of the system to support the Existing Campus.
- (e) Shutdown times for the electrical distribution network affecting the Existing Campus shall be in compliance with Section 3.5.3.1 (Maximum Utility Shutdown Times) of the Technical Requirements.
- (f) The 15kV cable capacities within the existing electrical ductbanks shall be based on amplicities of six circuits in the ductbank and in accordance with NEC Tables 210.60(C)(77) and (78).
- (g) The design, construction and implementation of photovoltaic (PV) arrays within the Project Site are strictly prohibited.
- (h) The use of aluminum bus or contactors is prohibited.

3.5.9 Natural Gas Infrastructure

3.5.9.1 Existing Condition

The Existing Campus is served from a high pressure PG&E natural gas main on Lake Road. The service comes onto the Existing Campus through a PG&E provided gas meter and pressure regulator with a minimum delivery pressure of 10 psig. An 8-inch "North Loop" serves the Existing Campus and follows Scholars Lane up to Ansel Adams Lane with an overall developed length of 4,805 feet. The "North Loop" has a total connected load of 84,877 cubic feet per hour (CFH) of natural gas. An 8-inch "South Loop" runs South of Scholars Lane and connects to the 8-inch gas main on Ansel Adams Lane with an overall developed length of 4,500 feet.

3.5.9.2 General Requirements

Developer shall design and construct the natural gas system required to adequately support the needs of the Project in accordance with the following requirements;

- (a) Developer shall submit the gas load calculations to the Owner required for Owner coordination with PG&E on any required PG&E upgrades of PG&E's natural gas piping system and/or the gas meter. The calculations shall include the gas loads of the Existing Campus and the Project. The gas load calculations for the Project shall enumerate all the new gas equipment including the gas load per unit and quantity of each type of equipment. The gas load calculations for the Project shall also include all miscellaneous gas connections including laboratory, food preparation use and gas appliances.
- (b) Developer may connect to the existing natural gas system to provide service to some or all of the Facilities in which case Developer shall:
 - (i) Implement all required upgrades to the existing natural gas system downstream of the gas meter. Developer shall submit to the Owner, all documentation required for Owner coordination with PG&E associated with Developer's upgrades of the Owner's natural gas system downstream of the gas meter;
 - (ii) Base the natural gas system design on a maximum of 1.5 psig total system pressure drop and total connected load, or maximum probable demand with no diversity factor;
 - (iii) Base the natural gas system design on the adjusted overall developed length of the system needed to serve the Facilities; and
 - (iv) Use piping materials listed in NFPA-54 and California Plumbing Code. The corrosive nature of soils within the Project Site shall be taken into consideration in selecting the pipe materials for underground installation.
- (c) The inclusion of the Facilities to the Existing Campus' natural gas system shall not affect the ability of the system to support the total connected load of the Existing Campus.
- (d) Shutdown times of the natural gas system shall be in compliance with Section 3.5.3.1 (Maximum Utility Shutdown Times) of the Technical Requirements.

3.5.10 Heating and Cooling Infrastructure

3.5.10.1 General Requirements

Developer shall design and construct the heating and cooling infrastructure required to adequately support the needs of the Project in accordance with the following requirements:

- (a) Developer shall utilize the existing Central Plant to generate some or all of the chilled water needs for the Project, in accordance with Section 3.5.7 (Central Plant Expansion) of Technical Requirements.
- (b) Developer shall be responsible for providing all chilled water distribution to all Facilities.
- (c) Developer shall determine the optimal mix of either Central Plant, including the Central Plant Expansion, or standalone cooling solutions to achieve the criteria set forth in Appendix 17 (Energy Utilities Management) of the Agreement and Appendix 6 (Area Data Sheets) of the Technical Requirements, on both a Building and a Project level.
- (d) Developer shall develop and implement a stand-alone heating solution for the Facilities within the Project Site. The heating solution shall utilize the natural gas Utility and Developer may elect to implement a centralized or a per-Facility heating solution for the Facilities within the Project Site.

3.5.10.2 Central Plant Boilers

No existing steam or hot water boiler capacity within the existing Central Plant is available for use by Developer to achieve the heating requirements of the Facilities.

3.5.11 Exterior Lighting, Power and Data Systems and Infrastructure

3.5.11.1 Exterior Lighting

3.5.11.1.1 Developer shall, in accordance with the following requirements, design and construct a safe and sustainable exterior lighting, power and data system and associated Infrastructure that accommodates pedestrians and nighttime circulation, and that integrates with the Existing Campus environment.

3.5.11.1.2 Developer shall prepare an exterior lighting design that is fully compliant with the exterior lighting requirements set forth in this Section 3.5.11.1 (Exterior Lighting). During the design review process, the Owner will use the fully compliant exterior lighting design as the baseline from which to identify exterior lighting reductions to achieve a 20% reduction in exterior lighting. Developer shall proceed to implement the exterior lighting design approved by the Owner following the identification of exterior lighting reductions in accordance with this Section 3.5.11.1.2. The minimum required

lighting levels that Developer shall achieve in each exterior Area will be adjusted to reflect the exterior lighting design resulting from lighting reductions made in accordance with this Section 3.5.11.1.2.

3.5.11.1.3 Developer shall comply with the following requirements as specified in the Area Data Sheets:

Exterior Lighting	
SL1	Road and Service Lighting: Lighting levels shall be a minimum of 0.9 Foot Candle (FC), with a uniformity ratio of 4:1 or better. Lighting may not be reduced for off hours.
SL2	Parking Lighting: Lighting levels shall be a minimum of 1 FC, with a uniformity ratio of 6:1 or better. Lighting may be reduced to 0.5 FC between 1:00 a.m. and 6:00 a.m., provided adaptive lighting is used to increase lighting when people are present.
SL3	Pedestrian and Bike Lighting: Lighting levels shall be a minimum of 1 FC, with a uniformity ratio of 4:1 or better. Lighting may be reduced to 0.5 FC between 1:00 a.m. and 6:00 a.m., provided adaptive lighting is used to increase lighting when people are present.
SL4	Plaza and Gathering Area Lighting: Lighting levels shall be a minimum of 3 FC, with a uniformity ratio of 4:1 or better. 3 FC is required for events or gatherings. Lighting shall operate at 1 FC in normal usage, and may be reduced to 0.5 FC between 1:00 a.m. and 6:00 a.m., provided adaptive lighting is used to increase lighting when people are present.
SL5	Sports Lighting as Detailed in the Technical Requirements: Lighting levels required by recreation or competition venue as detailed in <u>Section 3.7.14</u> (Specific Athletic and Recreational Facilities Requirements).
SL6	Loading Zone Lighting: Lighting levels shall be a minimum of 30 FC, with a uniformity ratio of 4:1 or better. Lighting may be reduced to 0.5 FC when the loading dock is not in use, provided adaptive lighting is used to increase lighting when people are present.
SL7	None

Table 3.5.11.1: Exterior Lighting

- (a) The exterior lighting system and associated infrastructure shall be in the form of a lighting system with energy efficient lighting installations to provide significant energy, maintenance, carbon and economic savings in accordance with Appendix 17 (Energy Utilities Management) of the Agreement.
- (b) Site lighting shall be designed to follow Project Site landscape design concepts.
- (c) Site lighting shall be designed with consideration of adjacent Work, Facilities and Existing Campus so that fixture types, light location and spacing and light color are coordinated between the Existing Campus and such Work and Facilities.
- (d) The exterior fixtures to be provided by Developer shall match those exterior fixtures within the Existing Campus.

- (e) All Project Site lighting shall be designed and constructed to provide the lighting levels for outdoor areas as set forth in Area Data Sheets.
- (f) All Project Site lighting shall be designed and constructed to at a minimum meet light level and uniformity requirements of the IESNA, except where the Contract Documents require higher levels.
- (g) Project Site lighting shall be designed and constructed to meet the LEED 2009 Requirements of Sustainable Sites, Credit 8: Light Pollution Reduction.
- (h) Light fixtures shall meet the Backlight, Uplight, Glare (BUG) ratings, in compliance with Illuminating Engineering Society (IES), Technical Memorandum TM-15, for the lighting zone of the site to limit light pollution. Core areas within the Project Site, including Areas with "Core Landscaping LS1" as specified in the Area Data Sheets, Exterior: Athletics: Shared Plaza Area, Exterior: Plaza: Formal Area, Exterior: Plaza Informal Areas, Exterior: Walkway: Primary Areas, Exterior: Bicycle Path: Primary Areas, and Building entrances shall have a lighting zone 3 (LZ3) rating (as defined by IES Recommended Practice RP33). All other Areas shall have a lighting zone 1 (LZ1) rating (as defined by IES Recommended Practice RP33), unless otherwise determined by the Owner.
- (i) Fixtures shall utilize house side shields when needed to reduce light spill over the Project Site boundary line.
- (j) Project Site lighting will be integrated with the BMS for photocell and time schedule control via relay panels.
- (k) Emergency and egress (safety) fixtures shall be coordinated with emergency power requirements and obtain approval from Designated Campus Fire Marshal.
- (l) Pedestrian lighting shall be fifteen (15) feet tall and street lighting shall be a minimum of twenty (20) feet tall.
- (m) Lighting sources shall have a color rendering index of eighty (80) or better.

3.5.11.2 Exterior Convenience Power and Data Points

3.5.11.2.1 Developer shall provide eight hundred (800) exterior duplex receptacles to support exterior convenience power, exterior duress alarm stations (blue light), and exterior wireless access points, to be distributed in accordance with the requirements set forth in Table 3.5.11.2.1A, as indicated in the Area Data Sheets. Where exterior data points are specified, such data connections shall include a single 120V exterior

grade outlet for power to support a Wireless Access Point. The WAP is to be provided by the Owner.

3.5.11.2.2 Developer shall provide one hundred (100) NAMs to support a wireless access points, with locations to be determined by Owner during design review process. NAM locations shall be within two hundred and fifty (250) feet of a Building

Site Power	
SP1	None
SP2	<p>Parking: Provide exterior grade lockable cover duplex receptacles. Number and location to be determined by Owner during design review process. Receptacles can be luminaire mounted.</p> <p>Provide power point of connection for ticket machines locations and any operable gates or barriers.</p> <p>Provide power point of connection for EV charging stations.</p>
SP3	<p>Plaza: Provide a minimum of 1 exterior grade lockable cover duplex receptacle for every 400 SF of plaza. Receptacles can be luminaire mounted.</p>
SP4	<p>Road, Walkway, Bicycle Path: Provide exterior grade lockable cover duplex receptacle. Number and location to be determined by Owner during design review process. Receptacles can be luminaire mounted.</p>
SP5	<p>Loading Zone: Provide a minimum of 3 exterior grade lockable cover duplex receptacles for each loading zone area. Receptacles can be luminaire mounted.</p>
SP6	<p>Sports Facility: Provide exterior grade lockable cover duplex receptacles distributed around the facility. Number and location to be determined by Owner during design review process. For Student Life: Athletics: Competition Field, provide two 400 A performance power distribution panels, one at one end zone and one at one side line, close to center field.</p>
SP7	<p>Courts: Provide exterior grade lockable cover duplex receptacles at each court. Number and location to be determined by Owner during design review process.</p>
SP8	<p>Pool: Provide a minimum of 6 exterior grade lockable cover duplex receptacles at pool surround</p>

Table 3.5.11.2.1A: Site Power

3.5.11.2.3 Developer shall provide performance power units as noted in the Area Data Sheets. Performance power units shall be exterior grade distribution panels.

3.5.11.2.4 In the event that the Project Site plan includes outdoor open areas not specified in Appendix 6 (Area Data Sheets) of the Technical Requirements, and depending on the size of such unspecified areas, Developer shall install a minimum of one (1) exterior grade lockable cover duplex receptacle in an appropriate location to facilitate outdoor activities by Users and to minimize the need for electrical extension cords.

3.5.11.2.5 In the event Developer utilizes an existing telecommunications manhole, Developer shall utilize the lowest available conduit in all instances.

3.6 BUILDING PERFORMANCE REQUIREMENTS

3.6.1 General Requirements

- (a) Developer shall design and construct the Buildings in accordance with the requirements of the Contract Documents, including, in respect of each Area with the Buildings, the requirements of the applicable Area Data Sheet.
- (b) Each Building shall have a variety in color, materials and finishes within the design of their facades creating individual identities for each Building.
- (c) Architectural finishes and materials shall be primarily selected to harmonize with materials and finishes used on buildings within the Existing Campus and further enrich the existing palette.

3.6.2 Program Area Distribution

3.6.2.1 Office Distribution by Delivery Phase

Up to 10% of the ASF for Office: Areas to be delivered with the Second Delivery Facilities and at Substantial Completion may be redistributed between the Second Delivery Facilities and at Substantial Completion in order to accommodate varying building designs which might favor different ratios from those assumed in developing the Program.

3.6.2.2 Support Space Distribution by Delivery Phase

Developer may vary the counts set forth in the “Quantity” column of Appendix 1-B (Program Elements) for the support Area Types listed in Section 3.6.2.3, provided that:

- (a) The minimum total ASF for each Area Type set forth in the “Total ASF” column of Appendix 1-B (Program Elements) of the Technical Requirements is provided;
- (b) The support Area must be within 100 feet of the Area it is intended to support; and
- (c) Any adjacency requirements specified elsewhere in the Technical Requirements are observed.

3.6.2.3 The support Area Types for purposes of Section 3.6.2.2 of the Technical Requirements are:

- (a) Academic: Classroom: Storage: General: GN-22: Supply;
- (b) Academic: Office: Academic Office: Lobby: GN-19;
- (c) Academic: Office: Academic Office: Work Station 02: Reception: GN-30;
- (d) Academic: Office: Academic Office: Printer/Copy Room: GN-17;

- (e) Academic: Office: Academic Office: Storage: General: GN-22: Filing;
- (f) Academic: Office: Academic Office: Breakroom / Kitchenette: GN-11;
- (g) Academic: Research: Lab Support and Maintenance: Storage: Chemical: AR-20;
- (h) Academic: Research: Lab Support and Maintenance: Storage: General: GN-22;
- (i) Academic: Research: Lab Support and Maintenance: Trash/Recycling: GN-08;
- (j) Housing: Residence Hall: Residential Floor: Lounge, Social (Students): SH-04;
- (k) Housing: Residence Hall: Residential Floor: Study Room: SH-05: Study Room;
- (l) Housing: Residence Hall: Community: Laundry: Housing: SH-18:
- (m) Housing: Residence Hall: Community: Lounge, Social (Students): SH-04:
- (n) Housing: Residence Hall: Community: Multi-Purpose: SH-20;
- (o) Housing: Residence Hall: Community: Study Room: SH-05: Lounge;
- (p) Housing: Residence Hall: Community: Recreation/Gaming: SH-21;
- (q) Housing: Support & Maintenance: Storage: Bike/Gear: SH-25;
- (r) Housing: Support & Maintenance: Trash/Recycling: GN-08;
- (s) Housing: Support & Maintenance: Storage: Custodial: GN-15; and
- (t) Housing: Support & Maintenance: Closet: Custodial: GN-28.

3.6.3 Circulation Requirements

3.6.3.1 Architectural Circulation Requirements

- (a) Interior circulation systems shall provide clear and direct access to the principal Program Areas of each level, afford views to the exterior along long corridors, and bring daylight into the interior along their length, through clerestories above adjacent doors,

frosted glazing along walls, alcoves, connecting stairs, or other means.

- (b) Interconnecting stairs shall be provided to encourage circulation and interaction between floors at intervals no greater than two hundred (200) feet. This requirement does not apply to Buildings comprised predominantly of Academic: Research Wet Areas and Academic: Research Dry Areas, provided that at least one central connecting stair is delivered in such Buildings.
- (c) Interconnecting stairs may be integrated with egress stairs required by applicable Law provided the interconnecting stairs are designed as Nonassignable Spaces: Interior: Stairwell: Primary Circulation.
- (d) Where Programs are similar at multiple levels within the Building, interconnecting stairs shall be designed to be visible and open stairs, except where security layering requires closed or restricted access. Where fire control doors or shutters are installed, they shall be designed to be open normally and to be closed only in the event of fire alarm.
- (e) Exterior circulation may be used to supplement interior circulation.
- (f) Exterior doors shall be designed to accommodate wind conditions found at the campus. Design shall include managing wind pressure on exterior exit doors to prevent slamming or difficulty opening. Where required vestibules, wind screens or assisted opening shall be provided to limit required opening force and facilitate egress.

3.6.3.2 Specific Space and Accessibility Requirements

- (a) The Buildings shall be designed to provide universal access and to conform to all ADA requirements.
- (b) Employee access to a Lactation Room is required for all work areas in accordance with Appendix 1-B (Program Elements) and with the University of California Policy PPSM 84 Accommodations for Nursing Mothers, which states “provide, in close proximity to the nursing mothers’ work area, appropriate sanitary and private and lockable space with a table, electrical outlet, and comfortable chair.” For the purpose of this requirement “close proximity” shall be defined as within a five to seven minute walk. Work areas may share one Lactation Room provided that such Lactation Room is within the required proximity in compliance with this Section. Lactation Rooms may be in adjacent Buildings provided the distance requirements are met. Lactation rooms shall conform to applicable Law.

- (c) Gender inclusive restrooms, changing rooms and showers.
- (i) For all Buildings, one gender inclusive, ADA compliant restroom shall be required on each floor that has gender specific restrooms.
 - (ii) Gender inclusive, ADA compliant changing room shall be required in each Building where gender-specific locker rooms or changing rooms are provided, and shall be located within such locker room or changing room so the User need not leave the locker room or changing room to access such gender inclusive changing room;
 - (iii) Gender inclusive, ADA-compliant showers shall be required in each Building in which gender-specific showers are provided. In the event such gender inclusive showers are to be located within a locker room or changing room, such gender inclusive showers shall be located so that the User need not leave the locker room or changing room to access such gender inclusive shower; and
 - (iv) Gender inclusive facilities shall have appropriate signage in accordance with Section 3.8.13 (Signage), and shall not use gender pictograms.

3.6.4 Acoustic Performance Requirements

3.6.4.1 Developer shall comply with the requirements set forth in Tables 3.6.4.1A and 3.6.4.1B, as specified in the Area Data Sheets:

Acoustics	
AC1	Very High Performance: Performance or Lecture Space: Space suitable for performance or lectures. Very low ambient noise in the room, with good acoustic isolation from outside space, for both airborne and structure borne sound. Interior space acoustically designed to manage reflection and reverberation.
AC2	High Performance: Classroom, Conference Room or Confidential Space: Space suitable for teaching, confidential conversations and high speech intelligibility. Low ambient noise in room, with good acoustic isolation from outside space, for both airborne and structure borne sound. Interior space acoustically planned to manage.
AC2-1	High Performance: Classroom, Conference Room or Confidential Space (Large volume space): Space suitable for teaching, confidential conversations and high speech intelligibility. Low ambient noise in room, with good acoustic isolation from outside space, for both airborne and structure borne sound. Interior space acoustically planned to manage).
AC3	Medium Performance: Closed Office: Space suitable for private conversations. Low ambient noise in room, with good acoustic isolation from outside space, for both airborne and structure borne sound.
AC4	Medium Performance: Open Office and Workroom Office: Low ambient noise in room. Interior space acoustically planned to absorb noise and manage reflection and reverberation.

Acoustics	
AC5	Labs and Workshops: Space suitable for teaching, confidential conversations and high speech intelligibility. Potentially noisy activity in space. Low ambient noise in room, with good acoustic isolation to and from outside space, for both airborne and structure borne sound.
AC6	Sleeping Accommodation: Space suitable for sleeping. High acoustic separation between spaces.
AC7	Public Space: Space suitable for public use, with moderate to high internal noise generation. High acoustic isolation to sound sensitive spaces. Interior space acoustically planned to absorb noise and manage reflection and reverberation.
AC8	Utility Space: High internal noise generation. Space perimeter designed to limit transmission of air or structure borne noise to other spaces.

Table 3.6.4.1A: Acoustics

Name	NC	STC	IIC	Maximum Reverberation Time	Sound Masking
AC1	20	65/45	65	1.0	Not permitted
AC2	30	50/35	50	0.6	Permitted
AC2-1	30	50/35	55	1.0	Permitted
AC3	35	50/30	55	0.6	Permitted
AC4	35	50/30	55	0.7	Required
AC5	40	50/35, limit transmitted from within space to 30dBA	50	0.6	Permitted
AC6	30	50/35 for interior elements 45 for opaque exterior walls 28 for exterior walls glazing	50	0.4	Not permitted
AC7	40	N/A	55	0.6	Permitted
AC8	60	limit transmitted sound from within space to 30dBA	55	0.4	Permitted

Table 3.6.4.1B

3.6.4.2 Areas specified in an Area Data Sheet shall conform to:

- (a) The applicable maximum Noise Criteria (NC) requirements specified in Table 3.6.4.1B of the Technical Requirements. NC ratings shall be as measured within the space following completion, and shall include all noise sources, including transient external noise;
- (b) The applicable minimum designed/laboratory assembly sound transmission (STC) ratings of perimeter specified in Table 3.6.4.1B of the Technical Requirements. Except as provided in Section 3.6.4.2(c) of the Technical Requirements, the first number in Table

3.6.4.1B is the designed STC value for the fixed elements (walls, floors, ceilings, including glazing). The second number is the STC value for the complete assembly including doors, openings and penetrations. The as-built field measured STC rating may not be more than 5dBA lower than the specified designed STC rating;

- (c) For acoustic performance AC6, the first number in Table 3.6.4.1B is the designed STC value for the interior fixed elements (walls, floors, ceilings, including glazing). The second number is the STC value for the complete interior assembly including doors, openings and penetrations. Exterior walls to Housing Areas shall have a minimum designed STC rating of 45 for opaque areas and 28 for glazing. The as-built field measured STC rating may not be more than 5dBA lower than the specified designed STC rating;
- (d) The applicable minimum designed/laboratory assembly impact insulation class (IIC) rating specified in Table 3.6.4.1B of the Technical Requirements for all perimeter elements. The as-built field measured IIC rating may not be more than 5dBA lower than the specified designed IIC rating;
- (e) The applicable maximum reverberation time (RT60) specified in Table 3.6.4.1B of the Technical Requirements. The reverberation time shall be the time taken for a given audio signal to fall by 60dB. Sound reflection shall also be managed with appropriate acoustic absorbing material, or non-parallel surfaces regardless of the specified reverberation time to ensure speech intelligibility and elimination of echoes; and
- (f) Sound masking shall be used as required or permitted by as specified in Table 3.6.4.1B of the Technical Requirements to improve acoustic performance. Sound masking shall not be used where prohibited in Table 3.6.4.1B.

3.6.4.3 Acoustic separations shall continue above the ceiling plane, and shall include any penetrations or joints. For areas with an STC rating of sixty (60) or greater, doors shall be fully gasketed doors with automatic door bottoms.

3.6.5 Materials Performance Requirements

Developer shall comply with the following materials requirements:

- (a) all interior materials must promote high Indoor Air Quality (IAQ);
- (b) low VOC products are mandatory;
- (c) materials used in Building interiors must be compatible with the list of cleaning products set forth in Appendix 15 (Custodial Services Cleaning Products) of the Technical Requirements, or be suited to

being cleaned or treated with other environmentally safe products or equipment.

3.6.6 Interior Air Quality Performance Requirements

Developer shall comply with the interior air quality performance requirements set forth in Section 3.8.3.4 (Ventilation) of the Technical Requirements.

3.6.7 Integrated Pest Management

3.6.7.1 Developer shall design and construct all Buildings in accordance with the following requirements:

- (a) in accordance with Developer's Integrated Pest Management Plan;
- (b) to eliminate threats to health and safety of Users, including vector threats;
- (c) to exclude pests, ensure that Facilities do not provide potential attraction or habitat for pests, and prevent damage or soiling to Facilities;
- (d) to protect the environmental quality, appearance and cleanliness of the Project Site and the Facilities;
- (e) to facilitate inspection and monitoring of pest activities; and
- (f) to ensure continued efficient Campus Activities.

3.7 BUILDINGS

3.7.1 Structural Systems

3.7.1.1 General Requirements

- (a) Developer shall design and construct the Buildings and associated Building envelopes and structural systems in accordance with the requirements of this Section 3.7 (Buildings).
- (b) The Buildings shall comply with the most recently adopted UC Seismic Safety Policy at the time of submittal of the Final Design Documents. See <http://www.ucop.edu/construction-services/facilities-manual/volume-1/vol-1-chapter-5.html>.
- (c) Building structural frames shall be designed to minimize impact on the Program and visual appearance of the interior of the Buildings. The columns and braces shall not be placed in a manner that will limit interior functional floor area or useable wall area.

3.7.1.2 Foundations

- (a) The foundations for all Buildings and structures shall be designed and constructed in conformance with Developer's geotechnical investigation report.
- (b) Design and construct perimeter walls for lateral soil, hydrostatic and seismic soil pressures, as designated by Developer's geotechnical investigation report.
- (c) Provide subdrainage systems for below-grade walls to relieve hydrostatic pressure associated irrigation water, stormwater, or seepage from the canals under the jurisdiction of the MID. Permanent pumped dewatering systems to lower the groundwater table at the site shall not be permitted.
- (d) Waterproof face of below-grade walls. Provide waterstops at pipe penetrations. Provide waterstops at construction joints below design water table.

3.7.1.3 Gravity Loads

- (a) The structural frame of the Buildings shall conform to the design live loads set forth in Table 3.7.1.3(a).

Live Load Requirements for Buildings Structural Design	
Area or Element	Minimum Design Live Load
Academic: Classroom: Class Laboratory Areas and Academic: Research Areas (excluding Research Laboratory 05: Computational, Large, and Research Laboratory 06: Computational, Small Areas) and corresponding support Areas.	100 psf plus 35 psf for casework and partitions ¹
Area Types identified as Storage: General	150 psf
Area Types identified as Stairwells	100 psf
Program Subcategories identified as Academic: Office, Research Laboratory 05: Computational, Large, and Research Laboratory 06: Computational, Small	80 psf plus 20 psf for partition loads

Live Load Requirements for Buildings Structural Design	
Area or Element	Minimum Design Live Load
Rooftop mechanical spaces	Weight of equipment plus 20 psf
All other spaces	80 psf
¹ Vibration criteria will usually result in live load capacity exceeding 100 psf.	

Table 3.7.1.3(a): Live Load Requirements for Buildings Structural Design

- (b) All other design gravity loads shall conform to applicable Law.

3.7.1.4 Seismic Requirements

- (a) Structural systems shall be designed and constructed to comply with applicable Law relating to seismic requirements and with the most recently adopted UC Seismic Safety Policy at the time of submittal of the Final Design Documents. See <http://www.ucop.edu/construction-services/facilities-manual/volume-1/vol-1-chapter-5.html>.
- (b) Non-structural components, including all building Elements and all supports, frames, backing, restraints, etc. for built in equipment, FF&E and User building contents shall be designed and constructed to comply with applicable Law relating to seismic requirements and with the most recently adopted UC Seismic Safety Policy at the time of submittal of the Final Design Documents. See <http://www.ucop.edu/construction-services/facilities-manual/volume-1/vol-1-chapter-5.html>.
- (c) Seismic resisting systems shall be designed for easy access and repair following a design level earthquake. Preference is given to systems that are inherently repairable, such as unbonded braced frames.
- (d) The design of all structural and non-structural seismic systems shall undergo a third-party peer review, as set forth in Section 2.6.3.4.1 of the Technical Requirements.

3.7.1.5 Vibration

Floor structures shall be designed to limit vibration in floors to the levels specified in the Area Data Sheets. In (i) Housing Areas; (ii) Student Life: Early Childhood Areas; and (iii) Buildings comprised predominantly of Housing Areas and within which the Academic Areas and Student Life Areas combined do not make up more than 25% of the total ASF of the Building, vibration causing equipment, such as mechanical

equipment and laundry equipment shall be isolated to eliminate perceptible vibration in adjacent spaces.

Vibration Criteria	
V1	2000 microinches/second
V2	4000 microinches/second
V3	Baseline, 8000 microinches per second, except that there is no vibration velocity requirement for (i) Housing Areas; (ii) Student Life: Early Childhood Areas; or (iii) Buildings comprised predominantly of Housing Areas and within which the Academic Areas and Student Life Areas combined do not make up more than 25% of the total ASF of the Building

Table 3.7.1.5: Vibration Criteria

3.7.2 Minimum Floor-to-Floor Heights

Floor-to-floor heights shall be designed and constructed to accommodate structural frame and Facility System components concealed within ceiling space in accordance with these Technical Requirements. Ceiling space shall allow for future utilities, including ducts, piping and cable trays to be installed and replaced. Such space shall allow for an additional 25% of ducting, piping, plumbing and electrical to be added in the future and not as part of the Project. Maintenance space above ceilings shall not require any special equipment or demolition of ceiling for access.

3.7.3 Building Envelope

3.7.3.1 General Requirements

- (a) The exterior cladding, including glazing, shall meet or exceed the requirements of the most recent version of the California Building Code, Title 24 and any subsequent code amendments or revisions prior to permit submittal. Glazing systems shall meet or exceed the requirements for visual light transmission outlined in the prescriptive portion of Title 24.
- (b) Design of the above-grade building enclosure must be demonstrated early in the design development. ASHRAE 160, Criteria for Moisture Control Design Analysis in Buildings is an acceptable basis of design. Demonstration of the transient hygrothermal behavior of the various multi-layer building components for all critical building enclosure systems must be confirmed through modeling.
- (c) Construction documents must clearly depict all drainage and air passages. Detail in three dimensions where practical, indicating elements including critical corner terminations, interface of all differing systems, or proper sealant methodologies.
- (d) The exterior envelope shall be designed to be weather resistant in as defined by the California Building Code. Developer shall obtain

an independent peer review of the building waterproofing design, and the waterproofing systems shall be added to the design QMP.

3.7.3.2 Building Façade

- (a) The preferred exterior skins for all Buildings shall be concrete, metal siding, window or curtain wall, or cementitious stucco. Where cementitious stucco is utilized, the cementitious stucco shall cover 50% or less of the Building façade for those Buildings comprised predominantly of Academic Areas, and 70% or less of the Building façade for those Buildings comprised predominantly of Housing Areas. Fiber cement panels may be used for soffits.
- (b) In the event stucco is utilized as an exterior skin, it shall be properly specified, detailed and installed so as to ensure:
 - (i) flatness of plus or minus one-quarter (1/4) of an inch for every ten (10) feet across multiple panels;
 - (ii) color fastness;
 - (iii) control and expansion joints to minimize cracking; and
 - (iv) compliance with the recommendations and guidelines of the Technical Services Information Bureau for Stucco and Plaster Type Materials, except recommendations and guidelines relating to integral color.

3.7.3.3 Materials

- (a) Products constructed of carbon steel are not permitted in exterior construction, which includes exterior walls, soffits, or roofs, except where protected by a galvanic zinc coating of at least four hundred and sixty (460) grams per m² (1.5 ounces per sq. ft.) of surface or other equivalent protection.
- (b) Finishes: All exposed metal fabrications shall be painted with a high performance coating.
- (c) Anchors in concrete shall be fabricated from corrosion resistant materials. Anchors in wet areas, areas subject to wetting and moisture, and anchors in soil to be stainless steel.
- (d) Thermal Movements: Allow for thermal movements from 120°F ambient and 180°F for material surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

3.7.3.4 Integrated Pest Management

- (a) All exterior cladding shall be designed in accordance with Developer's Integrated Pest Management plan, and shall at a minimum:
 - (i) ensure that facilities do not provide potential attraction or habitat for pests
 - (ii) be designed to exclude pests
 - (iii) be designed to facilitate inspection and monitoring of pest activities.

3.7.3.5 Intentionally deleted

3.7.3.6 Cleaning and Maintenance

- (a) All exterior cladding shall be designed to limit pests and dirt/dust accumulation, and to allow cleaning either from ground boom-lift equipment or from roof mounted staging.
- (b) Where sun control devices are used, operable and fixed sun control devices must be used, which allow for ease of maintenance, repair, and replacement. Window washing systems used for the facility must also be compatible with any sunscreens or sun control devices.
- (c) The facilities must have provisions for cleaning the interior and exterior surfaces of all windows, skylights, and other glazed openings. Demonstrate that cleaning and maintenance of interior glazing surfaces can be achieved without extraordinary means and methods. Submit this information with the construction documents.

3.7.3.7 Fenestration

3.7.3.7.1 Daylight and Views

- (a) Except as provided in Section 3.7.3.6.1(b), Developer shall design and construct the Facilities in accordance with the following requirements as indicated on the Area Data Sheets:

Daylight and Views	
D1	Full Access to Daylight and Views: Comply with LEED 8.1 and 8.2 Daylight and views requirements in 100% of room
D2	Partial Access to Daylight and Views: Comply with LEED 8.1 and 8.2 Daylight and views requirements for at least 50% of room

D3	Limited Access to Daylight and Views: Comply with LEED 8.1 and 8.2 Daylight and views requirements for at least 10% of room
D4	Daylight and Views Prohibited: Room shall have no opening to exterior
D5	Partial Access to Daylight and Views: Comply with LEED 8.1 and 8.2 Daylight and views requirements for at least 25% of room

Table 3.7.3.6.1: Daylight and Views

- (b) A combined total of not more than six (6) Areas selected from among the following Area Types are not required to meet the daylight and view requirements set forth in this Section 3.7.3.6.1:
 - (i) Academic: Research: Wet: Research Laboratory 01: Wet;
 - (ii) Academic: Research: Wet: Research Laboratory 01A: Synthetic Chemistry;
 - (iii) Academic: Research: Wet: Research Laboratory 02: Wet Support;
 - (iv) Academic: Research: Dry: Research Laboratory 03A: Dry – Dark;
 - (v) Academic: Research: Dry: Research Laboratory 03B: Dry – Flex; and
 - (vi) Academic: Research: Dry: Research Laboratory 04: Dry Support.

3.7.3.7.2 Window to Wall Ratio

For exterior walls only, the window to wall ratio shall be:

- (a) A minimum of 20% for Buildings 1-A, 1-B, 2-A, 3-A and 3-M, as identified in the Project Master Plan;
- (b) Between 30% and 40% for all other Buildings; and
- (c) No larger than 60% for any individual space other than lobbies and other transient spaces, including small gathering areas within such transient spaces.

Alternatively, Developer may utilize architectural shading screens in front of larger glazed areas on south and west exposures to mitigate heat or solar gain.

3.7.3.7.3 General Requirements

Aluminum windows must meet the requirements of ANSI/AAMA Standard 101-85. Only optimal performance classes may be used. Metal windows other than aluminum must meet the requirements of the National Association of Architectural Metal Manufacturers Standard SW-1 for the performance class required. Wood windows shall not be

permitted. All windows in Buildings comprised predominantly of Housing Areas shall be Energy Star certified. Vinyl windows are permitted in Housing Areas. Such vinyl windows shall meet the requirements of the American Architectural Manufacturers Association (AAMA) 101/I.S.2/A440-08, North American Fenestration Standard (NAFS) - Specification for Windows, Doors, and Skylights.

3.7.3.7.4 Glazing Standards

For all spaces other than Housing Areas, the minimum performance class is AW 40 Minimum Performance Class, defined in AAMA 101-2008, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights, and AAMA CW Design Guide for curtain wall and window wall. For Housing Areas, minimum performance shall be National Fenestration Rating Council certified. All glazing shall have a maximum air leakage of 0.75 L/s/M² (0.15 cfm/ft²) per AAMA 101-2008.

3.7.3.7.5 Wind Resistance

Design shall include a decreased glazing hazard consistent with 4/1,000 probability of breakage at design load. No permanent framing deformation at overload (150% design load) is allowed. Center of glass deflection relative to glass edges shall not exceed one (1) inch, with no impacts to serviceability or occupant comfort.

3.7.3.7.6 Window Frames

Window mullions, to the extent possible, shall be located on the floor-planning grid to permit the abutment of interior partitions.

3.7.3.7.7 Operable Windows

- (a) Where operable windows are used in any setting other than residential spaces, windows shall be casement or awning type. Operable windows in residential spaces may have horizontal sliding sash.
- (b) Casement or awning windows shall have a four (4) inch limiting device.
- (c) The hardware for casement or awning windows shall consist of crank handles for window operation.
- (d) Sensor/interlocks tied to the mechanical systems shall be installed.
- (e) All operable windows shall be provided with insect screens.

3.7.3.7.8 Glass and Glazing

- (a) Laminated glass shall have a minimum .060 inch PVB interlayer.
- (b) Glass in IGUs shall have a minimum thickness of one quarter (¼) inch.

- (c) IGUs shall have polyisobutylene primary seal and silicone secondary seals.
- (d) Low-E coating shall be used at a minimum on the #2 surface of the IGUs.
- (e) Minimum Performance Requirements:
 - (i) Visible Transmittance: 62%
 - (ii) Solar Factor (SHGC): 0.29

3.7.3.8 Louvers and Vents

- (a) Drainable louvers shall be a minimum of six (6) inches deep and constructed from aluminum extrusions.
- (b) Louvers shall incorporate 50% recycled content materials by weight.
- (c) Fasteners shall be the same material as items fastened or 300 series stainless steel. Do not use metals that are corrosive or incompatible with joined materials.

3.7.3.9 Skylights and Sloped Glazing

- (a) Skylights are defined as prefabricated assemblies shipped ready for installation, while sloped glazing is defined as field-assembled. Skylight design must follow the guidelines of AAMA Standard 1600. For the design of sloped glazing, two AAMA publications are available: Glass Design for Sloped Glazing and Structural Design Guidelines for Aluminum Framed Skylights.
- (b) Skylights and sloped glazing shall use low emissivity glass. Plastic shall not be permitted. Placement shall be calculated to prevent glare or overheating in the building interior. Condensation gutters and a path for the condensation away from the framing shall be included.
- (c) Consideration must be given to cleaning of all sloped glazing and skylights, including access and equipment required for both exterior and interior faces.
- (d) Skylights must be guarded for fall protection or meet OSHA structural requirements.

3.7.4 Roofing and Waterproofing

3.7.4.1 Architectural Requirements

Rooftops of Buildings shall be designed as a fifth façade, integrating forms, materials, and colors with the overall composition of the Building and the intention of generating a skyline of distinction. Clerestories, penthouses, ventilation louvers, mechanical screening and other appurtenances, such as fume hood stacks or solar armatures, shall be designed as integral elements of the overall composition of the Building. Roof screening is required at rooftops, except for Buildings 1B, 3C, 3D and 3H as shown on the Project Master Plan. Mechanical equipment shall be placed in the middle 1/3 of the roof to the extent possible.

3.7.4.2 General Requirements

- (a) Membrane waterproofing shall follow the recommendations of the National Roofing Contractors Association (NRCA) in the NRCA Waterproofing Manual.
- (b) Roofing design must follow the recommendations of the National Roofing Contractors Association as contained in NRCA publication, NRCA Roofing and Waterproofing Manual. The design of metal flashing, trim, and roofing must follow the recommendations of the Sheet Metal and Air Conditioning Contractors' National Association publication, Architectural Sheet Metal Manual.
- (c) All roof mounted equipment shall be mounted on platforms.
- (d) All platforms (curbs or pads) shall be a minimum of 8 inches in height from the finished roof surface.
- (e) The minimum distance allowed by roofing manufacturer to allow adequate installation clearances and turn up shall set the distance between all platforms required in Section 3.7.4.2(d).
- (f) Walk-pads shall be provided from roof access points to and around all rooftop equipment with a clear path of travel marked on roof plans with a minimum clearance of six (6) feet.
- (g) Required clearances for access and maintenance of rooftop equipment shall be considered during the performance of the Design Work to avoid the need of excessive climbing, stooping or bending.

3.7.4.3 Low Slope Roofs

Roofing membranes shall be a high quality, single ply system with high emissivity and aged solar reflectivity index greater than 70%.

3.7.4.4 Sloped Roofs

All sloped metal perimeter roofs shall be coated with polyvinylidene fluoride with high emissivity and infrared reflectivity greater than 70%.

3.7.4.5 Roof Access

- (a) All roofs designed to accommodate Program elements shall be provided with elevator access.
- (b) Where a roof is not designed to accommodate Program elements, roof access shall be provided by stairway, except for Buildings containing predominantly Housing Areas and except for Buildings 1D and 3G as shown on the Project Master Plan, for which roof access by ladder is permitted.
- (c) Stairways providing roof access shall not be of the alternating tread type, and shall be designed to limit access to authorized personnel only.
- (d) A clear path shall be provided for replacement of equipment from any elevator or other access points, as the case may be.
- (e) Roof hatches shall be designed so the hinge side is oriented towards the exterior edge. Confirm location with Designated Campus Fire Marshal.
- (f) All rooftop access doors shall be integrated with the overall design of the rooftop screening system.

3.7.4.6 Roof Perimeter Safety and Fall Protection

- (a) All accessible roof systems shall incorporate permanent fall protection systems to allow maintenance and access to all areas of the roof without restrictions.
- (b) Fall protection shall be an integral part of the roof design and shall be consistent throughout all Facilities.

3.7.5 Applied Finishes Options

3.7.5.1 Optionality Requirements

In the event the materials, products, furniture, millwork or finishes to be provided by Developer in accordance with the Contract Documents offer multiple color palettes, textures or finishes, Developer shall provide the Owner with a minimum of three (3) options for such color palettes, textures or finishes for Owner's selection and approval. Such materials, products, furniture, millwork or finishes include paint or staining colors for doors, door hardware colors and finishes, exterior glazing coloration, and those items included in Section 3.7.8 (Interior Finishes) and Section 3.7.9 (Interior Specialties)

of the Technical Requirements that offer such optionality of color palettes, textures or finishes.

3.7.5.2 Review Procedure

Any options provided by Developer to the Owner in accordance with Section 3.7.5.1 (Optionality Requirements) shall be reviewed by Owner in accordance with Section 2.6.3 (Work Submittal Review Process During the Construction Period) of the Technical Requirements.

3.7.6 Doors, Frames and Hardware

3.7.6.1 General Requirements

- (a) Interior doors and frames shall be fire rated as required by wall assemblies.
- (b) Wood doors shall be fabricated in accordance with WDMA I.S.-1.A, Architectural Wood Flush Doors, and DHI A115-W, Wood Door Hardware Standards.
- (c) Steel doors and frames shall be fabricated to meet requirements of ASTM/SDI 250.4, Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings. Hardware shall comply with BHMA A156 series requirements. All doors and frames shall be factory primed and prepared for hardware installation.

3.7.6.2 Hardware Preparation

- (a) Hardware shall comply with BHMA A156 series requirements.
- (b) Hollow metal frames shall be fabricated to meet requirements of ASTM/SDI 250.8, Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings.
- (c) All doors and frames shall be factory prepared for hardware installation. Hollow metal frames shall be factory primed.

3.7.6.3 Specific Area Data Sheet Requirements

Developer shall provide doors and door hardware in accordance with the requirements set forth in Tables 3.7.6.3A and 3.7.6.3B, as indicated in the Area Data Sheets:

Hardware	
H1	Card key access, entrance lockset
H2	Privacy lockset
H3	Card key access, entrance lockset
H4	Passage latchset

Hardware	
H5	Push/pull set – no latchbolt
H6	S&G mechanical combination type locks. Protect all openings over 1 sq. ft. with bars.
H7	Key pad entrance lockset
H8	Key access
H9	Bedroom, key operated entry lockset
H10	Residence Exterior key operated lockset/deadbolt combination

Table 3.7.6.3A: Hardware

Interior Doors	
ID1	Residential Door, Wood: 3'x7' solid core, stain grade, wood door in metal frame, with peephole viewer from interior
ID2	Standard Door, Wood: 3'x7' solid core, stain grade, wood door in metal frame
ID3	Standard Door, Metal: 3'x7' hollow metal door in metal frame
ID4	Standard Double Doors, Wood: Two 3'x7' solid core, stain grade, wood door in metal frame
ID5	Standard Double Doors, Metal: Two 3'x7' hollow metal door in welded metal frame
ID6	Lab / Utility Doors: Metal door in metal frame, 5'-0" opening, Pair of doors with active and inactive leaf: 3'-0" x 7'-0" & 2'-0" x 7'-0" (inactive leaf with automatic flush bolts and a closer). Vision panel in active leaf.
ID7	Medical: 4'x7' metal or solid core, stain grade, wood door, hollow metal in metal frame
ID8	Fully Glazed Door: 3'x7' fully glazed hollow metal door in metal frame
ID9	Glazed Dutch Door: 3'x7' Dutch wood door in metal frame, with fully glazed upper and lower leaf.
ID10	Major Entry Doors: Pair of 3'0"x7'0" doors, aluminum frame typical, glazed

Table 3.7.6.3B: Interior Doors

3.7.6.4 Metal Doors and Frames

Metal door frames and metal doors shall have a semi-gloss finish, which shall be coordinated with the paint schedule.

- (a) All metal frames shall conform to the following requirements:
 - (i) All door frames shall conform to the requirements of the Steel Door Institute (SDI) frame performance standards as determined by testing assemblies in accordance with ANSI/SDI A250.4, Test Procedure and Acceptance Criteria for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings. Frame ratings shall be suitable for the door type, function and frequency of use to ensure no loss of performance or integrity during the design life of the Facilities.

- (ii) All exterior and high frequency use interior doors shall have Metal frames that conform to the requirements of the Steel Door Institute (SDI) Type II, Extra Heavy Duty, seamless one piece welded frames shall be fabricated with mitered or coped, continuously welded corners;
 - (iii) Other interior doors shall have metal door frames that conform to the Heavy Duty or Standard Duty SDI requirements, as determined by door type, function and frequency of use. Knock-down frames are acceptable;
 - (iv) Alternative door and frame systems, including applications such as storefront, aluminum framed door systems and sliding doors, may be utilized provided that the performance levels are equal or superior to the steel door frame requirements and there is no loss of performance or integrity during the design life of the Facilities;
 - (v) all exterior frames shall be galvanized; and
 - (vi) all frames set in concrete block walls, which are to be grout-filled, shall be coated with asphaltic paint on the inside of the frames and on all frame anchors.
- (b) Metal doors shall conform to the requirements of the Steel Door Institute (SDI) Type II, Heavy Duty, in addition to the following:
- (i) all metal doors shall be of a flush panel design with 16-gauge faces;
 - (ii) all interior metal doors shall be level 2, physical performance level B (heavy duty), Model 2 (seamless);
 - (iii) all exterior metal doors shall be level 3, physical performance level A (extra heavy duty), Model 2 (seamless); and
 - (iv) doors shall be reinforced for hardware per ANSI/SDI A250.6.
- (c) The top of above-door transoms shall be no higher than the top of exterior windows in the opposite wall.

3.7.6.5 Wood Doors

All wood doors shall conform to the following minimum requirements:

- (a) All wood doors shall be made of low-emitting materials, such as composite wood.

- (b) Agrifiber products shall not contain added urea-formaldehyde resin.
- (c) Wood doors shall be fabricated with no less than 70% of products from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-01, "FSC Principles and Criteria for Forest Stewardship."
- (d) Wood doors to receive transparent finish shall be premium grade.
- (e) The finish for all wood doors shall be maple, plain sliced with a clear finish.
- (f) All veneers shall be book-matched.

3.7.6.6 Access Doors

- (a) Access doors and panels shall be primed metal to receive field paint, except at wet locations where they shall be fabricated from stainless steel.
- (b) Animal Holding Requirement: Access doors shall be fully gasketed on all four (4) sides.
- (c) Sound rated STC access panels shall be incorporated into acoustically sensitive partitions where access is required.

3.7.6.7 Aluminum Entrances

- (a) Doors and frames shall be fabricated in accordance with AAMA101/I.S.2/A440, North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
- (b) Safety glass in compliance with ASTM C1048, Standard Specification for Heat Treated Flat Glass, shall be used.
- (c) Finishes shall comply with AAMA 611, Specification for Anodized Architectural Aluminum or AAMA 260, Specification for Pigmented Organic Coatings.
- (d) Double doors shall not have central mullions in the path of travel.

3.7.6.8 Aluminum and Glass Storefront Doors

- (a) All aluminum and glass entrance doors shall be constructed with wide stiles and top rails. Narrow stiles and rails shall not be permitted.
- (b) Door hardware shall match make and style as specified, submitted and approved for all doors in Project scope.

- (c) Concealed head or floor type closers shall not be permitted.
- (d) All doors and frames shall accommodate insulated glazing.

3.7.6.9 Door Hardware

- (a) Except for doors provided with exit devices, all doors for rooms or closets shall have locks or latches of types which are operable at all times from the inside by turning lever and not requiring any special knowledge or effort.
- (b) All doors which open onto stairways, mechanical rooms, or other spaces where caution is required, shall have levers with tactile markings to alert visually impaired persons of such conditions.
- (c) All hardware for labeled openings, including locks, latches, butts, door closers, coordinating devices and exit devices, shall be listed and approved for opening classification noted or specified by the Deputy Campus Fire Marshal and an approved testing laboratory. Any specified hardware for such labeled openings not in compliance with this section shall be referred to Owner's Authorized Representative.
- (d) Door hardware mounting heights throughout the Project shall be uniform.

3.7.6.10 Locks and Keying

- (a) Subject to the limitation set forth in Section 3.7.6.10(b), wired card readers are required on all doors with hardware H1 or H3. Physical keys are required on all other doors as noted in the Area Data Sheets. Developer shall provide all required supporting infrastructure for card reader systems, including power, data, door and frame modifications, and all programming or software to deliver a complete finished lock system. The card reader systems shall be AD Lock series.
- (b) Developer shall provide and install one thousand (1,000) wired card readers for the Project, to be installed in locations identified by the Owner during the design review process. Where wired card readers are not provided for hardware groups H1 or H3 by operation of this clause, keyed entrance locksets shall be installed.
- (c) Developer shall furnish all Buildings with a grand master and master key system.
- (d) Developer shall consult with the Owner to determine which locks shall be keyed alike or keyed differently.

- (e) All doors shall be furnished with Schlage "Primus Everest" model in the "D" family key system at exterior and security area doors and matching "Everest" in the "D" family system on the interior doors. All cylinders shall be of the interchangeable core type, large format (FSIC).
- (f) During the Construction Work, keying shall be provided for doors requiring locking during construction. All temporary cylinders shall be removed at prior to Occupancy Readiness of the applicable Building.
- (g) Keys and Knox blanks shall be provided to the Owner as follows:
 - (i) two (2) cut change keys for each different change key code;
 - (ii) one (1) uncut key blank for each change key code;
 - (iii) six (6) cut master keys for each different master key set; and
 - (iv) three (3) uncut key blanks for each master key set.
- (h) Factory keying transcripts shall be provided to Owner's locksmith.
- (i) Strikes for locks, latches, and deadlocks shall have wrought boxes.
- (j) Locksets shall be reversible without opening the lock case.

3.7.6.11 Closers

- (a) All closers shall be fully hydraulic and have full rack and pinion action. Closer shall utilize full complement bearing at shaft to provide greatest load carrying capabilities of the shaft. Pinion and pistons shall be hardened regardless of size, to provide durable wearing surfaces. For hydraulic regulation, the closer shall incorporate tamper resistant, non-critical screw valves of v-slot design to reduce possible clogging from particles inside the closer. Closers shall have separate and independent screw valve adjustments for latch speed, general speed and hydraulic back-check. Back-check shall be properly located so as to effectively slow the swing of the door at a minimum of ten (10) degrees in advance of the dead stop location to protect the door frame and hardware from damage. Closers utilizing pressure relief valves are not acceptable.
- (b) All parallel arm closers shall incorporate one piece solid forged steel stud shoulder bolts and shall be incorporated in regular arms and hold open arms. All other closers shall have forged steel main arms for durability, esthetics, versatility, high strength, and long life.

Built-in stop arms or heavy duty dead stop arms are not acceptable.

- (c) Closers shall be hand specific for each application; universal type closers are not acceptable.
- (d) All closers shall be non-sized to provide a full range (1 to 4) closing power for all sizes, according to BHMA product standards (ANSI 156.4-1986, Table I) and shall be listed in BHMA Certified Products Directory to provide minimum closing force required to properly latch the doors as tested by an independent testing lab. For barrier-free applications, closer spring power shall be adjustable where desired, to provide less than 5 lbs. opening force for doors thirty-six (36) inches to forty-eight (48) inches wide.
- (e) All closers shall utilize temperature stable fluid capable of withstanding temperature ranges of 120°F to -30°F without requiring seasonal adjustment of closer speed to properly close the door.

3.7.6.12 Exit Door Devices

- (a) All exit devices shall be ANSI A156.3, 2001, Grade 1 certified.
- (b) Vertical rods or concealed rod devices shall not be permitted; only rim devices with keyed removable mullions. Fire separation doors in path of travel (bisecting a corridor) shall be reviewed on a case by case basis.
- (c) All wide stile devices shall have dead latching latch bolts to ensure safe and secure opening.
- (d) All devices shall utilize durable compression spring design. Devices, latches, trim or controls, incorporating tension springs shall not be permitted.
- (e) The lever trim shall be of wrought construction and designed with a breakaway feature.
- (f) The entire length of the push bar shall act as one piece.
- (g) Exit devices shall incorporate a dampener type mechanism to decelerate the push bar on its return stroke eliminating noise associated with the device's operation.

3.7.6.13 Push and Pull Plates

- (a) All plates shall be bronze or stainless steel.

- (b) There shall be a 1/16 inch minimum thickness for plates. Bevel 4 sides.
- (c) Pull plates shall be without screw holes when used with pulls. Pulls shall be bolted through the door at the grip only.

3.7.6.14 Surface and Flush Bolts

- (a) Flush bolts shall have a lever arm that is not friction operated and connected to the bolt mechanism.
- (b) Face plates shall be shaped to match the door edge.
- (c) The operating mechanism for the bottom flush bolt shall be no more than twelve (12) inches from the floor; the top flush bolt shall not be more than seventy-two (72) inches from the floor.
- (d) All flush bolts shall have dustproof strikes where engaging the floor, threshold or curb.
- (e) Surface bolts shall have a dustproof strike or an easy to clean floor strike.
- (f) Lifting handles on surface bolts shall be mechanically fastened. Press fitted lifting handles on surface bolts shall not be permitted.
- (g) Flush bolts that require the top and bottom corners of wood doors to be mortised out shall not be permitted.

3.7.6.15 Stops and Holders

- (a) Door stops shall be provided for each door leaf.
- (b) Floor stops shall be considered as the first choice over wall stops and overhead stops.
- (c) Hold-open stops shall not be permitted.
- (d) All stops and holders shall be solid or forged bronze; wrought materials shall not be permitted.
- (e) All screws on wall stops shall be concealed.
- (f) All rubber bumpers shall be fastened by a pin or screw that goes through the rubber and seats into the metal on the opposite side. A rubber bumper that is screwed into the metal holder shall be acceptable. Wall stops shall be provided with backing plates.

3.7.6.16 Thresholds

All thresholds shall have a reinforcing center leg. Single length for each opening and ends shall be cut to jamb profile.

3.7.6.17 Silencers

- (a) Provide silencers for all interior doors, except on weather stripped or smoke sealed doors.
- (b) Each single door shall have three silencers at the strike side of the frame and on door stop.
- (c) Double doors shall have one silencer per door leaf at frame head, plus 3 each on astragal.

3.7.6.18 Hardware Finishes

All hardware finishes shall conform to BHMA product standards, materials and finishes and in conformance with 626 Satin Chrome or 613 Oil Rubbed Bronze.

3.7.6.19 Hardware Installation

- (a) Door levers shall be thirty-eight (38) inches above finished floor.
- (b) The top of a top hinges shall be seven (7) inches below the head of the door frame.
- (c) The bottom of a bottom hinge shall be eleven (11) inches above finished floor.
- (d) The center hinge shall be equidistant from both the top hinge and the bottom hinge.
- (e) For doors taller than 84.5 inches or when door leaf is wider than 36 inches, provide two (2) equidistant centered hinges.

3.7.7 Interior Glazing

3.7.7.1 Developer shall comply with the following requirements as specified in the Area Data Sheets:

Interior Glazing	
RL1	Minimum 40 SF of glazing to corridors at vision height
RL2	Minimum 20 SF of clear glazing to corridors at vision height
RL3	Minimum 7 SF of clear glazing to corridors at transom/clerestory height
RL4	Minimum 2 SF vision panel in door
RL5	Minimum 30SF of glazing to corridors at vision height

Table 3.7.7.1: Interior Glazing

3.7.7.2 Interior glazing and frames shall be rated as required by wall assemblies. Glazing shall also be tempered or laminated as required for impact and crash protection. Wired glass shall not be permitted for fire rating or impact resistance.

3.7.7.3 Glazing shall be clear glass and be mounted at vision height to maximize views from interior spaces, except where noted as transom/clerestory height. The top of above-door transoms shall be no higher than the top of exterior windows in the opposite wall. Where possible, glazing shall be installed adjacent to doors to function as a sidelight.

3.7.7.4 Interior glazing frames shall match adjacent door and glazing frames in material and appearance. Wood window frames shall not be permitted.

3.7.7.5 In rooms where blackout shading is required, glazing shall incorporate captive (between the glass) motorized blackout shades with blackout edge detailing.

3.7.8 Interior Finishes

Developer shall provide Interior Finishes in accordance with the requirements set forth in Tables 3.7.8A, 3.7.8B, 3.7.8C, 3.7.8D, and 3.7.8E, as indicated in the Area Data Sheets:

Ceilings	
C1	Standard Architectural Ceiling: Acoustical Panel Ceilings (<u>Section 3.7.8.3</u>), Architecturally Exposed (<u>Section 3.7.8.5</u>), Suspended gypsum board, level 4 finish, painted (<u>Section 3.7.8.2</u>), or similar
C2	Suspended Acoustic Panel, Mylar Faced: Acoustical Panel Ceiling, Scrubbable (<u>Section 3.7.8.3</u>),
C3	Gypsum Board, Suspended: Suspended gypsum board, level 4 finish, painted (<u>Section 3.7.8.2</u>)
C4	Gypsum Board, Suspended, Epoxy Painted: Suspended gypsum board, level 4 finish, epoxy painted (<u>Section 3.7.8.2</u>)
C5	Gypsum Board, Framed: Framed Gypsum board, painted, textured finish (<u>Section 3.7.8.2</u>)
C6	Enhanced Ceiling: Acoustical Panel Ceiling with gypsum board soffits and/or coffers (<u>Sections 3.7.8.2 and 3.7.8.3</u>)
C7	Open, Architecturally Finished: Exposed structure and services, painted and architecturally finished (<u>Section 3.7.8.5</u>)
C8	Open, Utility: Exposed structure and services (<u>Section 3.7.8.6</u>)
C9	No preference, except not Utility

Table 3.7.8A: Ceilings

Floors	
F1	Standard Architectural Flooring: Carpet or Carpet tile (Section 3.7.8.13), Stained/polished Concrete (Section 3.7.8.8), or similar. Excludes Resilient Flooring
F2	Residence Flooring: Carpet Tile Throughout, Ceramic Tile in Bathrooms, Resilient Flooring in Kitchens: Carpet Tile throughout (Section 3.7.8.13), ceramic tile in bathrooms, where applicable (Section 3.7.8.7), resilient flooring in kitchens (Section 3.7.8.10)
F3	Lobby Flooring: Porcelain tile, terrazzo, stained/polished concrete (Section 3.7.8.8), or similar
F4	Ceramic Tile: Ceramic tile, high wet slip resistance (Section 3.7.8.7)
F5	Chemical Resistant Flooring: Seamless chemical resistant vinyl (Section 3.7.8.10.5) or trowelled epoxy, with integral base (Section 3.7.8.10)
F6	Resilient Flooring: VCT or linoleum (Section 3.7.8.10.2)
F7	Utility: Sealed concrete, unstained (Section 3.7.8.9), or resilient flooring (Section 3.7.8.10)
F8	Quarry Tile
F9	Polished Concrete: Polished Concrete (Section 3.7.8.8)

Table 3.7.8B: Floors

Walls	
W1	Latex paint, eggshell
W2	Latex paint, semigloss over heavy texture. Heavy texture shall be knock-down spatter finish with 100% of gypsum board covered by texture compound.
W3	Epoxy Paint
W4	Ceramic Tile
W5	Architectural Wall Finish
W6	Sealed and painted CMU, semi-gloss
W7	Special Finish: Any finish unique to specific rooms (ex. Insulated panels, sheet metal, glass panels)

Table 3.7.8C: Walls

Partitions	
PL1	Standard: 22 gauge metal stud
PL2	Medium Load Capacity: Ability to hang up to 20 lb. at any one point, 100 # over any 4 feet on two of the primary walls within the Area. Where an Area has a defined front wall, the front wall shall be one of the walls with the prescribed loading capacity.
PL3	Heavy Load Capacity: Ability to hang up to 50 lb. at any one point, 200 # over any 4 feet on two of the primary walls within the Area. Where an Area has a defined front wall, the front wall shall be one of the walls with the prescribed loading capacity.

Table 3.7.8D: Partitions

Visual Privacy	
PR1	High Visual Privacy: No direct view in from regularly accessible areas. Direct view includes view of any occupant of the space
PR2	Occasional Visual Privacy: Ability to limit views into space by blinds or drapes on both interior and exterior glazing.

Table 3.7.8E: Visual Privacy

3.7.8.1 General Partitions Requirements

Any material selected by Developer for partitions, including movable unitized partitions or any other type of partition selected by Developer, shall conform to all requirements, including load requirements, of this Section 3.7.8 (Interior Finishes), Appendix 6 (Area Data Sheets) of the Technical Requirements, and the Contract Documents.

3.7.8.2 Gypsum Board Partitions and Ceilings

3.7.8.2.1 Gypsum board shall comply with C1396, Standard Specification for Gypsum Board. Gypsum board selection will vary depending on application: Type X gypsum board for fire rated assemblies, Type MR for locations subject to moisture or high humidity, Type IR where impact resistance is needed, or cementitious backer board in showers.

3.7.8.2.2 Gypsum board shall be 5/8-inch (16mm).

3.7.8.2.3 Partitions shall have loading capacity identified in the Area Data Sheets, with a maximum deflection of L/360 for walls greater than 30' in length or greater than 12' in height. For walls less than 30' in length and less than 12' in height, the maximum deflection shall be L/240.

3.7.8.2.4 Ceilings shall have a maximum deflection of L/360.

3.7.8.2.5 Interior finish levels shall conform to the standards set forth by ASTM C 840. Provide higher level of finish as required to comply with fire-resistance ratings and acoustical ratings.

- (a) Level 1 shall be used in plenum areas and areas concealed to public view.
- (b) Level 2 shall not be permitted.
- (c) Level 3 shall be used for substrates for tile or other applied material. Residential areas shall have level 3 finish with spray applied splatter knock down texture
- (d) Level 4 shall be the typical finish level, unless otherwise noted.
- (e) Level 5 shall be used where semi-gloss & glossy paints are to be applied, with the exception of restrooms, in locations exposed to strong side lighting, and in all locations where glass-mat faced, moisture resistant gypsum board is used and exposed to view.

3.7.8.3 Acoustical Panel Ceilings

3.7.8.3.1 All manufacturers shall have a post-consumer recycling program.

3.7.8.3.2 All acoustical panel ceilings shall conform to the following performance requirements:

- (a) acoustical panel ceilings shall be sag resistant manufactured of mineral fiber;
- (b) acoustical panel ceilings shall have a minimum recycled content of 70% as determined by LEED requirements, with postconsumer recycled content plus one-half pre-consumer recycled content;
- (c) directional or non-directional fissured texture;
- (d) NRC value shall be 0.80 minimum for areas greater than or equal to 250 SF, 0.60 for areas smaller than 205 SF;
- (e) CAC value shall be 35;
- (f) minimum light reflectance shall be 0.80;
- (g) flame spread shall conform to the requirements of Class A, ASTM E84;
- (h) thickness shall be three-quarter ($\frac{3}{4}$) inch; and
- (i) scrubbable Mylar facing where identified in Area Data Sheets as washable.

3.7.8.3.3 All acoustical panels shall have recessed edges. Edges shall be beveled tegular or tegular.

3.7.8.3.4 All acoustical panels shall be treated with manufacturer's standard broad spectrum antimicrobial fungicide and bactericide treatment.

3.7.8.4 Metal Suspension Systems for Acoustical Panels

3.7.8.4.1 Metal suspension systems shall be exposed narrow face, 9/16 inch flange; heavy duty load classification.

3.7.8.4.2 Recycled content shall be a minimum 25% total, with postconsumer recycled content plus one-half of preconsumer recycled content.

3.7.8.4.3 Attachment devices shall be sized for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise specified.

3.7.8.4.4 Developer shall be responsible for testing and conformance to the most recent seismic design requirements.

3.7.8.4.5 Post-installed expansion anchors in concrete shall be provided with current ICC Evaluation Service Report (ESR) conforming to ICC AC193, Acceptance Criteria for Mechanical Anchors in Concrete Elements.

3.7.8.4.6 Carbon-steel components shall be zinc plated to conform with ASTM B 633, Class Fe/Zn 5 for Class SC 1 service condition, for corrosion protection.

3.7.8.4.7 Power-actuated fasteners in concrete shall be provided with current ICC Evaluation Service Report (ESR) conforming to ICC AC70, Acceptance Criteria for Fasteners Power-Driven into Concrete, Steel and Masonry Elements.

3.7.8.5 Ceilings: Architecturally Exposed Structure

Architecturally exposed ceiling areas are those areas intentionally open to structure above and may contain suspended acoustical or other opaque panels and lighting fixtures. Mechanical and electrical equipment including ductwork, conduit, fire sprinkler piping, etc. exposed to view shall be coordinated and orthogonally laid out for neat and workmanlike appearance.

3.7.8.6 Ceilings: Exposed Structure and Services, Utility

Utility exposed ceiling areas are those areas intentionally open to structure above and may contain suspended acoustical or other opaque panels and lighting fixtures. Mechanical and electrical equipment including ductwork, conduit, fire sprinkler piping, hangers, supports, etc. exposed to view shall be laid out for neat and workmanlike appearance. Exposed elements shall be painted or unfinished, and shall be clean, free of marks, mill scale, or other fabrication residue.

3.7.8.7 Tiling (Wall and Floor)

3.7.8.7.1 Provide ceramic tile with a minimum of 20% recycled content.

3.7.8.7.2 Obtain each color, finish, and variety of tile from a single source within an area. Tile shall be from same production run and of consistent quality in appearance and physical properties for each contiguous area without delaying progress of the work.

3.7.8.7.3 Floor tile shall have high wet and dry dynamic slip resistance as defined by ANSI 137.1.

3.7.8.7.4 Conforms to ANSI 137.1 Absorption Class P4. Breaking strength greater than or equal to 175 lbs. Stain and chemical Class B or better.

3.7.8.8 Polished Concrete

Provide polished concrete finishes where used as follows:

- (a) Bonded Abrasive Polished Concrete: multi-step process of mechanical grinding, honing and polishing of concrete surface to achieve the specified level of finished gloss as defined by the Concrete Polishing Association of America (CPAA)

- (b) Concrete polishing to be provided by personnel trained and experienced in similar installations supervised CPAA Craftsman Level 1 or higher while work is in progress.
- (c) Concrete Mix Design shall be specially coordinated for areas to receive polished finish to comply with requirements for gloss level.
- (d) Gloss Level, Application of Color, Application of liquid products:
 - (i) Apply liquid densifier as recommended by CPAA.
 - (ii) Apply non-film forming soluble colorant as selected by Architect.
 - (iii) Apply impregnating type sealer for stain protection.
 - (iv) Gloss level: Finished Gloss Level 2 (medium) Reflective Clarity not less 55 (ASTM D5767) and Reflective Sheen not less than 25 (ASTM D523).

3.7.8.9 Sealed Concrete – Utility

All exposed concrete shall be sealed and hardened with liquid or dry applied sealer. Sealant shall be zero VOC, and shall provide hardness, water resistance and dusting control suitable for the use of the space.

3.7.8.10 Resilient Flooring

3.7.8.10.1 Rubber Sheet Flooring

- (a) All material for rubber sheet flooring shall be made from bit-sized re-processed EPDM rubber.
- (b) Rubber sheet flooring shall have a minimum of 20% of recycled content.
- (c) Rubber sheet flooring surfaces shall have high wet and dry dynamic slip resistance as defined by ANSI 137.1.

3.7.8.10.2 Linoleum Sheet Flooring

- (a) All material for linoleum sheet flooring shall be a homogeneous sheet of primarily natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendared onto natural jute and sound impact reduction backing. Pattern and color shall extend throughout total thickness of material.
- (b) Linoleum sheet flooring shall have high wet and dry dynamic slip resistance as defined by ANSI 137.1.
- (c) The gauge for linoleum sheet flooring shall be 0.080 inch.

- (d) Seams shall be chemically bonded with seam sealers. Gaps or overlaps shall not be permitted.
- (e) Where required, cove resilient sheet floor coverings up vertical surfaces to form an integral base of height indicated over cove support strip with top edge butted against and covered by cap molding. Form inside and outside corners in accordance with manufacturer's instructions and to match approved sample.

3.7.8.10.3 Vinyl Enhanced Tile

- (a) VET. Bio-based vinyl or polymer enhanced tile with Class I Solid Color, Class II Through Pattern. Thickness of 0.125 inches or greater. Static load limit greater than or equal to 125 psi. Factory finish applied, LEED v. 3.0 eligibility for VET including recycled content. Floor Score Certified.
- (b) Basis of design products: Migrations by Armstrong, Color Essence by Johnsonite/Tarkett, or product of equal or better quality and specifications.

3.7.8.10.4 Sheet Vinyl

- (a) Heterogeneous Type I (Clear Wear Layer 0.020 inches) Type II (Filled Wear Layer 0.050 inches). Static load limit greater than or equal to 175 psi. Factory surface applied. Five (5) year warranty. 5% recycled content and CA 1350 compliant.

3.7.8.10.5 Vinyl Sheet Flooring – Chemical Resistant

- (a) All material for vinyl sheet flooring shall be a homogeneous sheet of complying with ASTM F 1913 for unbacked vinyl sheet flooring and ASTM F1303 for backed vinyl sheet flooring.
- (b) Thickness: 0.080 inches (2.0mm)
- (c) Seamless installation method: Heat Welded with self-covered base.
- (d) Cove resilient sheet floor coverings up vertical surfaces to form an integral base of height indicated over cove support strip with top edge butted against and covered by cap molding. Form inside and outside corners in accordance with manufacturer's instructions and to match approved sample.
- (e) Basis of design products: Medintech by Armstrong, Colorex EC by Forbo, or product of equal or better quality and specifications.

3.7.8.10.6 Luxury Vinyl Tile

Luxury vinyl tile is not permitted.

3.7.8.11 Resilient Base and Accessories

Install rubber base with premolded inside and exterior corners.

3.7.8.12 Fluid-Applied Flooring

3.7.8.12.1 Fluid-applied flooring material shall be an abrasion-resistant, impact-resistant, and chemical-resistant monolithic trowel applied waterproof flooring and integral cove base.

3.7.8.12.2 The thickness of fluid-applied flooring shall be nominal 3/16 inch.

3.7.8.12.3 Trowel-applied, broadcast systems shall be preferred.

3.7.8.13 Carpet or Carpet Tile

- (a) Texture Appearance Retention Rating (TARR) of 3.5 (Severe traffic) or higher for all academic spaces, meeting rooms, ballrooms, etc. with carpet, 3.0 or higher (Heavy traffic) for other areas. Type 6 or Type 6.6, BCF Nylon.
- (b) Green label certified cleaners applied.
- (c) 10% Pre- or Post- Consumer Recycled Content. NSF 140 Gold Level Certified. Meets Green Label Plus certification and equivalent CHPS protocol.
- (d) Solid color carpet shall not be permitted.
- (e) Specified carpeting shall comply with University of California System Wide Contract.
- (f) Dye method: 100% solution dyed.
- (g) Recycled content: 30% minimum.
- (h) Carpet shall have soil/stain protection
- (i) Backing Materials: Manufacturer's standard backing designed for glue-down installation using recovered materials.
- (j) Adhesives shall meet VOC limits set forth in IEQc4.1. Peel and stick is preferred.
- (k) Carpet shall comply with Carpet and Rug Institute's Green Label Plus Program and Testing Procedures.

- (l) Carpet installation shall conform to Carpet and Rug Institute 104 for temperature, humidity, and ventilation limitations.
- (m) Tile Size shall be twenty-four (24) inches by twenty-four (24) inches maximum.

3.7.8.14 Flooring, Adhesives

All adhesives and sealers shall comply with VOC requirements specified in LEED 2009:

Adhesive and Sealers Specifications	
Adhesives	VOC Limit g/L
Rubber Floor Adhesive	60
Subfloor Adhesive	50
VCT and asphalt tile Adhesive	50
Cove Base Adhesive	50
All Others	250
Sealant Primers	
Other	420
Requirements from San Joaquin Valley Quality District Rule 4653 (1/1/12) except for aerosol adhesive requirements which come from Green Seal Standard GS 36 (10/19/00).Applicable definitions apply.	

Table 3.7.8.14: Adhesive and Sealers Specifications

3.7.8.15 Painting

3.7.8.15.1 Painting products shall be top-of-the-line products by firms with over 5 years manufacturing experience with a full product line. Product manufacturers shall be Benjamin Moore, Dunn-Edwards, Frazee, Akzo Nobel, Kelly-Moore, Sherwin Williams, Vista, or product of equal quality and specifications.

3.7.8.15.2 Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use thinners approved by paint manufacturer, and use within recommended limits.

3.7.8.15.3 All water-based paints and their associated primers and sealers shall have zero-VOC content. This includes flat, satin, semi-gloss, and eggshell finishes (MPI gloss levels 1-5).

3.7.8.15.4 All paints, coatings, and primers (other than water-based paints mentioned above) used within the building weather envelope shall comply with the VOC limits of

LEED MRc4 and of San Joaquin Valley Unified Air Pollution Control District; whichever is more stringent.

3.7.8.15.5 Gloss Levels: 60-degree meter gloss reading range:

- (a) Gloss Level 1 (Flat): less than 5 – to be used on ceilings.
- (b) Gloss Level 2-3 (Eggshell): 5 to 20 – to be used on walls.
- (c) Gloss Level 4 (Satin): 20 to 25 – to be used on walls.
- (d) Gloss Level 5 (Semi-gloss): 35 to 65 – to be used on doors and on walls in areas requiring high levels of maintenance.

3.7.8.15.6 All paints and coatings shall meet MPI's (Master Painters Institute) approved product list.

3.7.8.16 Primers/Sealers

- (a) Primer Sealer, Interior, Institutional Low Odor/VOC: MPI #149 X-Green.
- (b) Primer, Latex, for Interior Wood: MPI #39.
- (c) Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint systems indicated.

3.7.8.17 Water-Based Paints

- (a) Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 1): MPI #143 X-Green.
- (b) Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3): MPI #145 X-Green.
- (c) Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 4): MPI #146 X-Green.
- (d) Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 5): MPI #147 X-Green.
- (e) Latex, Interior, High Performance Architectural, (Gloss Level 3): MPI #139.
- (f) Epoxy Paint, Light Industrial Coating, Interior, Water-Based, Semi-Gloss (Gloss Level 5): MPI #153. Epoxy Coating, Waterborne Polyamide Epoxy (P42) - Two component, catalyzed epoxy coating providing excellent chemical resistance, good solvent resistance, good acid resistance, and very good abrasion resistance. (Gloss Level 5) MPI #115, VOC Level 250.

3.7.8.18 Floor Coatings

Sealer, Water Based, for Concrete Floors: MPI #99.

3.7.8.19 Dry Fog/Fall Coatings

Dry Fall, Latex, Gloss Level 3: MPI #155.

3.7.8.20 Ventilation During Painting

The space shall be supplied with 100% outside air during painting and for a period of seventy-two (72) hours following completion of painting. The air leaving the room/space shall be exhausted only to the outside, with no distribution to any occupied spaces during painting and for a period of seventy-two (72) hours following completion of painting.

3.7.8.21 Steel Coatings

3.7.8.21.1 Steel coatings shall apply to all exposed exterior ferrous metal surfaces and galvanized steel items, unless otherwise indicated in Technical Requirements, including:

- (a) hollow metal doors and frames;
- (b) galvanized steel sheet metal flashing and trim;
- (c) miscellaneous metals;
- (d) stairs, railings and handrails;
- (e) non-factory finished steel mechanical and electrical items; and
- (f) non-factory finished mechanical and electrical equipment piping, conduit and supports.

3.7.8.21.2 For steel coating products, the product basis of design shall be Tnemec Company, Ameron or a product of equal or better quality and specifications.

3.7.8.21.3 Materials allowed for steel coating shall be:

- (a) Polyamidoamine Cured Epoxy, Series L69 Epoxoline;
- (b) Waterborne acrylic polyurethane, 1080 Endura-Shield WB;
- (c) Urethane zinc rich primer, 90 97 Tnemec Zinc; and
- (d) Substitutes of equal quality or specifications are acceptable.

3.7.8.21.4 All exposed pipes/metal, above ground electrical boxes, panels, backflow preventers, bollards, light poles, trash cans & benches are required to be painted to match color:

- (a) Items which need to be powder coated (bollards, light poles, trash cans, benches, etc.) shall be in Tiger Drylac: 49/72530, Color: Ral 7023 (SM GL Tribo), Batch #: CAL 11944GG
- (b) Items which do not need to be powder coated (exposed pipes/metal, backflow preventers, panels, etc.) shall be Sherwin Williams SW6200-Link Gray matched to color Tiger Drylac: 49/72530, Color: Ral 7023 (SM GL Tribo), Batch #: CAL 11944GGFurnishings

3.7.9 Interior Specialties

Developer shall provide all framing, supports, restraints, gasketing and sealants, and all connections to building systems for all interior specialties including the interior specialties identified in this Section 3.7.9. Interior specialties shall be installed to allow for easy access for maintenance, repair, cleaning and replacement.

3.7.9.1 Millwork

3.7.9.1.1 Millwork includes custom wood fabrications such as cabinets, built-in furniture, shelving, and other items of architectural woodwork. Cabinets include base and wall cabinets. The descriptions below do not apply to metal cabinets or casework such as the type that might be found in laboratories. Quality descriptions for millwork and cabinets are based on the AWI's Architectural Woodwork Quality Standards. Quality standards for hardware such as drawer slides, hinges, pulls, latches and locks, and shelf supports are based on ANSI/BMHA 156.9, Cabinet Hardware.

3.7.9.1.2 Countertops include any fabricated work surface including those in offices, kitchens, or toilet rooms. Countertops include backsplashes and endsplashes. Quality descriptions are based on the AWI's Architectural Woodwork Quality Standards.

3.7.9.1.3 Millwork & countertops quality shall be as follows:

- (a) Millwork quality level 1 shall be AWI Premium Grade. Particle board core with wood veneer on exposed to view surfaces. Shop fabricated by millworker to custom sizes and configurations. Grade 1 hardware, plated finish. Countertop shall be exterior grade plywood with wood, high quality laminate, solid surface or similar and edge. AWI Premium Grade.
- (b) Millwork quality level 2 shall be AWI Custom Grade. Particle board core with plastic laminate veneer. Factory fabricated to standard sizes. Grade 2 hardware, plated finish. Countertop shall be particle board with plastic laminate top and edge. AWI Custom Grade.
- (c) Unless otherwise noted in Area Data Sheets, all millwork shall be millwork quality level 1.

3.7.9.2 Teaching Wall

Teaching walls shall be installed in all Academic: Classroom Areas. Teaching walls shall be scaled appropriately to the Classroom Area and comply with the following requirements:

- (a) Teaching walls shall be custom or fabricated assemblies including display areas, white boards, projection screens and storage cabinetry to provide an integrated unit for teaching.
- (b) For Academic: Classroom: Classroom 4: 30 seat Areas and Academic: Classroom: Classroom 5: 24 seat Seminar Room Areas, and for Academic: Classroom: Class Laboratory Areas, the overall width of the teaching wall shall be a minimum of 15 feet, and, at a minimum, teaching wall shall include two 3-foot wide full height cabinets and base cabinets/credenza.
- (c) For Academic: Classroom: Classroom 2: 90 Seat (TEAL), Flat Floor Areas, Academic: Classroom: Classroom 3: 90 seat, Flat Floor Areas and Academic: Classroom: Classroom 1: 299 Seat, Stepped Seating Areas, the overall width of the teaching wall shall be 25 feet and, at a minimum, teaching wall shall include two 6-foot wide full height cabinets and base cabinets/credenza.
- (d) Millwork quality shall be level 1 as set forth in Section 3.7.9.1.3(a).

3.7.9.3 White Boards

White boards shall be installed as provided in Appendix 6 (Area Data Sheets) of the Technical Requirements. White boards shall have low gloss enameled metal or glass surface, be suitable for dry-erase use, and be of high durability. Whiteboard message boards are not required in the Housing: Residential Hall: Residential Floor Areas.

3.7.9.4 Shades

Developer shall comply with the following requirements as specified in the Area Data Sheets:

Shading	
S1	Roller Shades, 5% Open: Roller shades, manual operated, unless integrated with Daylighting
S1A	Roller Shades, 5% Open and Manually Operated Blackout Shades: (S1) plus manually operated blackout shades. Blackout shades on exterior and interior glazing
S2	Roller Shades, 5% Open and Motorized Blackout Shades: (S1) plus motorized blackout shades, coordinated with AV where appropriate. Blackout shades on exterior and interior glazing
S3	Vertical Louver Blinds

Table 3.7.9.4: Shades

3.7.9.5 Trash Chute Systems

- (a) Trash chute systems are required in all Housing portions of Buildings that are three (3) stories or taller.
- (b) Trash chute systems shall comprise a trash room on each floor, a trash chute riser assembly and a trash chute room to house dumpsters.
- (c) Access to Trash Rooms in all Facilities, except Housing Areas, shall be controlled with keycard readers.
- (d) Trash rooms shall be sized by Developer to be adequate for the anticipated usage. Trash rooms on ground floors shall be separate from the trash chute rooms and shall provide for collection and aggregation of trash for transfer to dumpsters in the trash chute rooms.
- (e) Trash chute systems in Housing Areas shall have two (2) chutes, one (1) for trash and one (1) for recycling. Each chute shall be clearly marked.
- (f) Chutes shall not be installed offset from plumb.
- (g) Trash chute rooms and chute shaft locations shall be designed so the chute discharge empties towards the center of the dumpster.
- (h) Materials utilized for trash chutes fabrication shall be thirteen (13)-gauge, aluminized steel reinforcing the impact areas.
- (i) The minimum chute diameter shall be twenty-four (24) inches.
- (j) Chute intake doors shall be ADA-compliant, bottom-hinged, self-closing, positive latching.
- (k) Doors shall be fitted with a low-voltage electrical interlocking system that shall be wired so that when a single door is open the remaining doors on the chute are locked down. When the master switch located in the rubbish collection room is activated, all chute doors shall be locked down.
- (l) Provide UL "B" labeled door units one and a half (1½) hour with thirty (30) minute temperature rise of 250°F, complete with closers. The requirements set forth in this Section 3.7.9.5 shall conform to NFPA 82.
- (m) Chute discharge doors shall be rolling steel door type with fusible link hold open per current code.
- (n) Roof termination vent units shall conform to NFPA guidelines.

- (o) Full-sized chute vents shall extend a minimum of three (3) feet above roof.
- (p) Vent units shall not be within ten (10) feet of any air intakes.
- (q) Nonferrous metal roof counter flashing and clamping ring shall be provided, compatible with chute metal and coordinated with roof configuration.
- (r) The following chute accessories shall be provided:
 - (i) Fire sprinklers in conformance with NFPA Standard No. 13.
 - (ii) Glass fiber isolators with one quarter (1/4)-inch minimum static deflection shall be provided.
 - (iii) Sound dampening: coat outside of chute with fluid epoxy vibration damping compound.
- (s) Odor control system shall operate with minimum dripping and shall not cause wetting or other moisture related problems.
- (t) Odor control system shall produce a uniform "Vapor" of 5 micron (mean) sized fluid droplets.
- (u) Vaporizer spray unit shall be 115VAC, 1-phase, 60-Hz, 1/3-HP air compressor motor.
- (v) System shall dispense a natural odor neutralizer solution derived from essential oils and plant extracts. All contents GRAS by FDA.
- (w) Odor neutralizer solution shall have independent laboratory test data which confirms odor reduction, safety and toxicity properties.
- (x) Odor neutralizer solution shall be non-hazardous, non-flammable, non-toxic, non-corrosive and water soluble.

3.7.9.6 Entrance Floor Grilles

- (a) Entrance floor grilles are required at all Buildings at the main point of entry. Grilles are not required at secondary entrances or at functional rooms with a direct point of entrance/egress to the exterior.
- (b) Entrance floor grilles shall extend a minimum four (4) feet in the path of travel into the Building entrance Area. Exterior grilles are not be required.
- (c) Floor grilles shall be designed to support a minimum of two hundred (200) pounds per square foot without permanent deflection and support a three hundred (300) pound concentrated

load at any point without deflecting more than one-eighth (1/8) of an inch.

- (d) All grilles shall be easily removable for maintenance purposes, and shall not rattle when walked on.
- (e) A drain is required underneath all recessed grilles (interior only). The substrate under the grille shall be sloped to drain.
- (f) The product basis of design shall be MATS, Inc. "Safe Track, K.N. Crowder Mfg., FG-12 Inc. C/S Group or product of equal or better quality and performance.

3.7.9.7 Toilet/Bathroom Partitions

- (a) Toilet/Bathrooms are to have floor to ceiling type units consisting of solid polymer pilasters, panels and doors; steel leveling devices with stainless steel covers; and stainless steel fittings; hardware and fastenings necessary.
- (b) Shower stalls: Fabricated shower stalls are permitted and shall have full height side panels. Showers stalls in Housing Areas shall have full height doors to ensure full privacy.

3.7.9.8 Toilet Accessories

3.7.9.8.1 Install toilet accessories as listed in the Area Data Sheets. Provide products manufactured by a company with a minimum of ten (10) years successful experience manufacturing similar products. To the greatest extent possible provide products from a single manufacturer.

3.7.9.8.2 Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the Project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.

3.7.9.8.3 Accessories shall be commercial heavy duty, stainless steel, satin finish, and shall use standard sized supplies, such as toilet rolls, seat covers, etc. All accessories shall be lockable and theft/vandal resistant, and shall be easily serviced and refilled without special equipment, except for key access. Provide keys to UCM for service.

3.7.9.8.4 Toilet accessories include:

- (a) Toilet Tissue dispenser: dispenser shall be double roll type with automatic drop in and shall be suited for toilet paper rolls up to 5 1/4" diameter;
- (b) Seat Cover Dispenser: dispenser shall hold standard refill cartridges up to two hundred and fifty (250) covers;

- (c) Sanitary napkin dispenser: required product is Bobrick B-2706 50;
- (d) Waste receptacle: required product is Bobrick B270;
- (e) Paper towel dispenser: capacity 400 C fold towels;
- (f) Soap dispenser: Touch free. Required product is GoJo 2740-12;
- (g) Soap/shampoo rack in shower stalls;
- (h) Robe hooks;
- (i) Hand Drier: Required product is Dyson Airblade AB02;
- (j) Changing station: Fold out changing table, required product is Bobrick model KB110-SSRE; and
- (k) Mirrors: Mirrors shall be one-quarter (1/4)-inch thickness with solid backing. Frames shall be one half (1/2)-inch by one half (1/2)-inch by one half (1/2)-inch heavy duty stainless steel angle, with all corners mitered and welded. Tilt mirrors shall be stainless steel with tilt built into frame.

3.7.9.9 Emergency Key Cabinets

Emergency Key Cabinets shall be recessed with side hinged doors, large enough to hold all necessary:

- (a) Keys and box cap wrenches, and have a stainless steel finish;
- (b) Police Department boxes shall be Knox Box Model #3273 with tamper switch on door or equal, and shall be indicated with reflective blue tape;
- (c) Fire Department boxes shall be Knox-Fault Model #4140 high security commercial key vault with tamper switch on door or equal, and shall be indicated with reflective red tape. Provide standpipe wrench on door; and
- (d) Both Emergency Key Cabinets are required to be monitored through the CBord System which requires a connection to BDF room.

3.7.9.10 Drinking Fountains and Water Bottle Filling Stations

- (a) Building interior drinking fountains: In quantities and locations required by code, provide Barrier-free "Hi-Lo" Chilled Dual Wall Mount Fountains with water bottle filling stations. Construction shall be of 14 gauge Type 304 Stainless Steel with electric water coolers.

- (b) Exterior drinking fountains: At locations indicated on the Area Data Sheets including at least one location for each Nonassignable Spaces: Exterior: Fields: Competition and Nonassignable Spaces: Exterior: Fields: Recreation Area provide Barrier-free "Hi-Lo" Dual Wall Mount or Pedestal Drinking Fountain combination with Bottle Filling Station. Construction shall be vandal-resistant fabricated of 12-gauge Type 304 Stainless Steel with powder coat finish in color as selected by Architect. Design shall include a freeze-resistant valve assembly for year round operation. Exterior drinking fountains shall be placed in shaded locations where possible.
- (c) All drinking fountains, water coolers, and bottle fillers shall be fabricated with 100% lead-free waterways in accordance with NSF/ANSI Standard 61, Section 9, California Proposition 65, California Health and Safety Code and the Federal Safe Water Drinking Act.

3.7.10 Specific Laboratory Requirements

3.7.10.1 General Laboratory Requirements

In all Academic: Classroom: Class Laboratory Areas and Academic: Research Areas, service risers and primary horizontal distribution shall be sized to permit a 25% increase in duct and piping systems. The riser areas and horizontal distribution corridors shall be accessible to allow addition of piped services or ducts without modification or relocation of existing systems.

3.7.10.2 General Laboratory Adjacency Requirements

- (a) Academic: Research: Computational: Research Laboratory 06: Computational, Small Areas must be co-located with Academic: Research: Computational: Research Laboratory 05: Computational, Large Areas.
- (b) The research laboratory support areas for each type of research laboratory shall be adjacent to the laboratory served, as follows:
 - (i) Academic: Research: Wet: Research Laboratory 02: Wet Support Areas must be adjacent to Academic: Research: Wet: Research Laboratory 01: Wet Areas.
 - (ii) Academic: Research: Dry: Research Laboratory 04: Dry Support Areas must be adjacent to Academic: Research: Dry: Research Laboratory 03: Dry Areas or Academic: Research: Dry: Research Laboratory 03A: Dry-Dark Areas or Academic: Research: Dry: Research Laboratory 03B: Dry – Flex Areas.
 - (iii) Academic: Research: Performance: Research Laboratory 08: Studio Support Areas must be adjacent to Academic:

Research: Performance: Research Laboratory 07: Studio Areas.

- (c) Research laboratories may be grouped by function and type to allow for greater efficiency of construction.
- (d) There are twelve “wet” classroom laboratories (Academic: Classroom: Class Laboratory: Classroom Laboratory Areas 1 through 3) which shall be supported by six Academic: Classroom: Class Laboratory: Classroom Laboratory 8: Service Areas which must be located within 100 feet of the laboratory classrooms they support.
- (e) There are seven “dry labs” (Academic: Classroom: Class Laboratory: Classroom Laboratory 4: Dry) which shall be supported by two Academic: Classroom: Class Laboratory: Classroom Laboratory 8: Service Areas, which must also be located within 100 feet of the laboratory classrooms they support.

3.7.10.3 Laboratory Equipment

3.7.10.3.1 Modular Laboratory Bench Casework

- (a) Laboratory Bench systems shall be modular bench support structures with adjustable height work surfaces and shelving. Bench system shall include pre-piped and pre-wired services intended for quick connect to overhead service distribution panels. Casework shall include mobile metal cabinet units with wood veneer, plastic laminate or metal drawer and door faces. Where plastic laminate is used, it shall be high quality, high-pressure laminate with post formed edges or hardwood nosing. Sink base cabinets shall be located along a “wet wall” and not on the modular laboratory bench. The sink base cabinet shall be fixed, metal casework with wood or metal door faces and panels. Plastic laminate shall not be used for sink bases. Laboratory sinks shall be accessible to the disabled. Mobile cabinets shall have one drawer and one door. All doors shall have locks.
- (b) Service distribution:
 - (i) Lab Bench structures shall be designed to provide piped services concealed in the vertical posts of the shelving system with valved outlets on the inside face of alternate posts. Electrical power and data distribution shall be concealed in the same or separate posts from the piped services. Power and data shall be distributed horizontally the length of each bench within separated metal raceway as well as one duplex electrical receptacle below work surface level.

- (ii) Provide LED magnetic task lighting units compatible with the laboratory shelving system, for 25% of laboratory benches. The basis of design shall be Kewaunee Scientific, LED Magnetic Task Lighting units.
- (c) Laboratory bench systems shall be UL listed as powered furniture with maximum load capability as follows:
 - (iii) Work surface: 800 lbs. or 80 psf;
 - (iv) Shelving: 100 lbs. or 25 plf; and
 - (v) Cabinets: 150 lbs. contents.
- (d) The basis of design for Laboratory Bench Systems is Mott Manufacturing "Optima System", Kewaunee "Enterprise Workstations", or a product of equal or better quality and specifications.
 - (i) All construction and metal finishes shall be in conformance with SEFA 8 standards; and
 - (ii) All steel used in the product fabrication shall comply with the LEED Rating System and contain at least 20% recycled steel content. Manufacturer shall provide documentation including source of materials, invoices and Third Party Validation in support of the LEED rating applicable to the Project.

3.7.10.3.2 Laboratory Work Surfaces

- (a) All laboratory work surfaces shall be chemical resistant epoxy resin material.
- (b) The product basis of design shall be Durcon Laboratory Tops, Inc., Taylor, TX, 512-595-8000; Epoxyn Products, Mountain Home, AR, 870-425-4321; Kewaunee Scientific Corporation, Statesville, NC, 704-873-7202; or a product of equal or better quality and specifications.
- (c) The color for all laboratory work surfaces shall be black or dark grey.

3.7.10.3.3 Overhead Carrier/Service Panels

- (a) The modular laboratory bench system shall include overhead service manifolds or ceiling service panels to supply piped services, power and data to the benches.

- (b) The overhead service system shall be from the same manufacturer and system line as the bench systems, and shall form a comprehensive design solution.
- (c) Provide connections from the overhead service system to the Modular Bench System posts specified in Section 3.7.10.3.1(b). All connections, piping or wiring shall be from the same manufacturer and system line as the bench system and shall form a comprehensive design solution.

3.7.10.3.4 Laboratory Fume Hoods: General

- (a) Fume hoods shall meet the requirements of the Scientific Equipment and Furniture Association (SEFA).
- (b) Labeling of fume hoods shall be required, as set forth in Section 3.8.13 (Signage) of the Technical Requirements.
- (c) Provide barometric dampers in any rooms with fume hoods and negative pressurization, such that the pressure will not exceed fifteen (15) psi for any exit door.
- (d) All fume hoods up to six (6) feet in length shall include one (1) cup sink. Fume hoods greater than six (6) feet in length shall have two (2) cup sinks.
- (e) All fume hood exhaust ductwork shall be stainless steel or epoxy lined from hood to point of adequate dilution with other exhaust air to prevent corrosion or damage to duct systems.

3.7.10.3.5 Chemical Fume Hoods

- (a) The product basis of design for all chemical fume hoods shall be Advanced Lab Concepts, Austin, TX, 800-711-5277; Jamestown Metal Products, Inc., Jamestown, NY, 716-665 5313; Kewaunee Scientific Corporation, Statesville, NC, 704-873-7202; or a product of equal or better quality and specifications.
- (b) Installed brands shall have been in commercial production and usage for a minimum of five (5) years.
- (c) Chemical fume hoods shall conform to the most current American National Standards Institute (ANSI)/ASHRAE 110 method.
- (d) Ductless or auxiliary air hoods shall not be permitted.
- (e) Operator adjustable baffles, removable fixed slot or perforated baffles shall not be permitted. Slots shall be continuous across the back of the fume hood.

- (f) Noise generated by the functioning hood within six (6) inches of the plane of the sash and by-pass opening in any position shall not exceed 60dBA.

3.7.10.3.6 Fume Hood Construction

- (a) Fume hoods shall be constructed of materials compatible with intended usage.
- (b) Removable baffles shall have three (3) fixed slots or engineered perforations.
- (c) Fume hoods shall have air foils that provide an air sweep across the work surface with the sash in the fully lowered position. Air foils installed over the work surface edge, allowing for air flow under the air foil are preferred.
- (d) Interior end panels shall require an access panel with gas tight gasket.
- (e) Work surface for fume hoods shall be chemical resistant epoxy resin.
- (f) All fume hoods shall be equipped with decommissioning capabilities.

3.7.10.3.7 Sash

- (a) Sashes of the vertical type shall have one-quarter ($\frac{1}{4}$) of an inch thick laminated safety glass complete with one-quarter ($\frac{1}{4}$) of an inch deep stainless steel metal channels on sides, top and bottom; or frameless.
- (b) Combination sashes shall not be permitted.
- (c) Mechanical stops (not friction) to ensure that sash work opening is eighteen (18) inches, as measured from the bottom of the fume hood work surface to the bottom of the sash.
- (d) A manual override to allow the vertical sash to be raised above the maximum opening to allow lab apparatus to be installed or removed.
- (e) Operating face velocity at eighteen (18) inches shall be set to one hundred (100) fpm.

3.7.10.3.8 Fume Hood Air Flow Indicator/Alarm

- (a) An airflow alarm shall be provided. The hood shall be prepared at the factory to receive the specified alarm/monitor. As a minimum, the alarm shall accommodate the following:

- (i) The safety monitor/alarm system shall monitor face velocity and provide audible and visual alarm if face velocity drops below ninety (90) fpm or rises above one-hundred and twenty-five (125) feet per minutes. Audible alarm shall pulse at 80dBA.
- (ii) The monitor shall be UL listed, with all alarm circuit electric components, external tubing, restrictors and manifolds furnished complete. Monitor shall have a light emitting diode (LED) display, which provides clear indication of airflow conditions. Safety monitor shall be tamperproof.
- (iii) The alarm signal shall be an audible pulsating signal and a visual, large flashing red LED.
- (iv) Silence push buttons shall not temporarily override the audible alarm for a period longer than five (5) minutes, and be accessible on the front of the safety monitor.
- (v) Academic: Classroom: Laboratory hood alarm override shall not exceed a one (1) minute period. Once the unsafe operating condition has been corrected, the audio alarm shall automatically reset.
- (vi) During temporary silence of the audible alarm, the visual alarm shall remain activated until the alarm condition is corrected.
- (vii) The electrical outlet for such alarm shall be located on top of the hood and it shall not be possible to routinely disable the alarm.
- (viii) When the alarm condition is corrected and face velocity and volume return to specified levels, the safety monitor shall automatically reset and begin routine monitoring.
- (ix) Test circuit shall be provided to verify proper safety monitor operation.
- (x) The electrical rating for such alarms/monitors shall be a maximum fifteen (15) VDC and maximum current rating of two-hundred (200) mA.
- (xi) The product basis of design for such monitor or alarm shall be ALNOR Airgard three hundred and thirty-five (335) or a product of equal or better quality and specifications.
- (xii) Such alarm or monitor shall be connected between fume hood and the filter or damper.

- (xiii) Flow tube device (floating indicators) or ribbons hanging in the air stream shall not be acceptable airflow indicators.

3.7.10.3.9 Acid Fume Hoods

- (a) Product requirements for acid fume hoods shall conform to NFPA 45 and in conformance with all the specifications set forth in this Section 3.7.10.3.9, as applicable.
- (b) Acid fume hoods shall have a constant volume hood with by-pass feature.
- (c) Flammable liquid storage cabinets shall not be permitted for installation under acid fume hoods.
- (d) Acid storage cabinets shall be permitted for under fume hood storage. Such cabinets shall not be vented through the fume hood work surface or into acid fume hood exhaust system. Cabinets may be vented into the general lab exhaust.
- (e) Acid fume hood shall be constructed of material suitable for chemicals to be used. Non-metallic finished interior for acid use preferred.
- (f) Sashes for acid fume hoods shall conform to the following specifications:
 - (i) Sashes of the vertical type shall have one-quarter ($\frac{1}{4}$) of an inch thick laminated safety glass complete with one-quarter ($\frac{1}{4}$) of an inch deep stainless steel metal channels on sides, top and bottom. Some specialty acid hoods may require a Lexan sash, or product of equal quality and specifications;
 - (ii) Combination sashes shall not be permitted;
 - (iii) All acid fume hood sashes shall have a bypass;
 - (iv) Such sashes shall have mechanical stops to ensure that sash work opening is eighteen (18) inches, as measured from the bottom of the fume hood work surface to the bottom of the sash;
 - (v) A manual override to allow the vertical sash to be raised above the maximum opening to allow lab apparatus to be installed or removed shall be required;
 - (vi) Operating face velocity at eighteen (18) inches shall be between one hundred (100) fpm and one hundred and twenty (120) fpm;

- (vii) Glass panels shall be one-quarter ($\frac{1}{4}$) of an inch thick laminated safety glass complete with one-quarter ($\frac{1}{4}$) of an inch deep metal channels on sides and bottom compatible with usage and
- (viii) Light opening shall be one-quarter ($\frac{1}{4}$) of an inch thick safety glass in rubber channels within metal frame.

3.7.10.3.10 Other Specialty Hoods and Local Exhaust

- (a) Histology hoods, specimen hoods, and other local exhaust specialty hoods shall require a minimum operating face velocity of one hundred (100) fpm with a range of one hundred (100) fpm to one-hundred (120) fpm. An audible/visual flow alarm may be required depending on use.
- (b) Fume hood exhausts shall be located so that the exhaust is pointed away from adjacent Facilities.

3.7.10.4 Biological Safety Cabinets

3.7.10.4.1 All biological safety cabinets shall meet the specifications within the most recent edition of the National Sanitation Standard 49 – Class II (Laminar Flow) Biohazard Cabinetry.

3.7.10.4.2 All product basis of design for all biological safety cabinets shall be Baker, Nu-Aire, LabConco, ThermoFisher-Forma or a product of equal or better quality and specifications.

3.7.10.4.3 Biological safety cabinets other than those specified in this Section 3.7.10.4.3 shall not be permitted.

3.7.10.4.4 All biological safety cabinets shall conform to the following specifications:

- (a) Cabinet face velocity shall be maintained at no less than one hundred (100) fpm at all times during operation;
- (b) Each cabinet shall be equipped with one front mounted Magnehelic gauge indicating the differential pressure across the filter (except Class II Type B2 cabinets, with an alarm that warns if the air flow drops 20% or more from specification);
- (c) The noise level as measured twelve (12) inches in front of the cabinet and fifteen (15) inches above the work surface shall not exceed 67dBA; and
- (d) All cabinets shall be tested per National Sanitation Foundation (NSF) Standard 49 or manufacturer's specifications after installation.

3.7.10.4.5 Class II, Type A1 cabinets (formerly designated Type A, now obsolete) shall not be permitted.

3.7.10.4.6 Class II, Type A2 Cabinets (formerly designated Type B3) shall:

- (a) maintain a minimum average inflow velocity of one hundred (100) fpm (0.5 m/s) through the work access opening;
- (b) shall have HEPA filtered downflow air that is a portion of the mixed downflow and inflow air from a common exhaust plenum; (Typically 70% of the inflow air is recirculated and 30% is exhausted.)
- (c) may exhaust HEPA filtered air back into the laboratory or to the environment through an exhaust canopy;
- (d) have all biologically contaminated ducts and plenums under negative pressure or surrounded by negative pressure ducts and plenums; and
- (e) type A2 cabinets used for work with minute quantities of volatile toxic chemicals and tracer amounts of radionuclides required as an adjunct to microbiological studies shall be exhausted through properly functioning exhaust canopies.

3.7.10.4.7 Class II, Type B1 Cabinets shall:

- (a) maintain a minimum average inflow velocity of one hundred (100) fpm (0.5 m/s) through the work access opening;
- (b) have HEPA filtered downflow air composed largely of uncontaminated recirculated inflow air; (Typically 30% of the inflow air is recirculated and 70% is exhausted.);
- (c) exhaust most of the contaminated downflow air through a dedicated duct exhausted to the atmosphere after passing through a HEPA filter;
- (d) have all biologically contaminated ducts and plenums under negative pressure or surrounded by negative pressure ducts and plenums;
- (e) type B1 cabinets may be used for work treated with minute quantities of volatile toxic chemicals and tracer amounts of radionuclides required as an adjunct to microbiological studies if work is done in the direct exhausted portion of the cabinet, or if the chemicals or radionuclides will not interfere with the work when recirculated in the downflow air; and
- (f) exhaust in-place HEPA filters must be of the bag-in/bag-out type.

3.7.10.4.8 Class II, Type B2 Cabinets, sometimes referred to as “total exhaust,” shall:

- (a) maintain a minimum average inflow velocity of one hundred (100) fpm (0.5 m/s) through the work access opening;
- (b) have HEPA filtered downflow air drawn from the laboratory or the outside air;
- (c) exhaust all inflow and downflow air into the atmosphere after filtration through a HEPA filter without recirculation in the cabinet or return to the laboratory;
- (d) have all contaminated ducts and plenums under negative pressure or surrounded by directly exhausted (nonrecirculated through the work area) negative pressure ducts and plenums;
- (e) type B2 cabinets may be used for work with volatile toxic chemicals and radionuclides required as adjuncts to microbiological studies; and
- (f) exhaust in-place HEPA filters must be of the bag-in/bag-out type.

3.7.10.5 Flammable and Corrosive Storage Cabinets

3.7.10.5.1 Flammable and corrosive storage cabinets shall be completely lined with a polypropylene or polyethylene liner with sealed or seamless intersections between panels, and shall be vented to the laboratory exhaust system.

3.7.10.5.2 No metal of any type shall be exposed within the lined interior.

3.7.10.5.3 Screw-heads, if required, shall be covered with hinged-type (not snap-on) plastic-head covers.

3.7.10.5.4 For corrosive cabinets, the word “CORROSIVES” shall be in conspicuous silk-screened lettering. Stick-on decals shall not be permitted. Size and letter should be two (2) inches tall in red. If cabinet is red, lettering shall be yellow.

3.7.10.5.5 For flammable cabinets, the word “FLAMMABLE-KEEP FIRE AWAY” shall be in conspicuous lettering. Size and letters shall be two (2) inches tall in red. If cabinet is red, lettering shall be yellow.

3.7.10.5.6 The lettering for both cabinets shall match each other.

3.7.10.6 Specific Research Laboratory Requirements

3.7.10.6.1 Flexible Design: Academic: Research Areas and support spaces shall be designed to be flexible and adaptable.

- (a) Laboratories shall be organized around modular planning principles using standardized units or dimensions that accommodate a variety of uses and support change of use over

time. Modular planning will be used as an organizational tool to allocate space within the building. The module establishes an organizations structure that guides the placement of walls and partitions.

- (b) The modular approach shall include the organized and systematic delivery of the Building Infrastructure including laboratory piped services, HVAC systems, fume hood exhaust ducts and power and signal systems. These services shall be delivered to each laboratory in a repetitive and consistent manner, with an accessible point of connection or shut-off at uniform locations relative to each laboratory group, so that changes in laboratory use requiring addition or deletion of services can be accomplished easily.
- (c) Laboratory bench systems shall be configured on modules such that demising walls can be constructed on laboratory modular grid.
- (d) All piped services shall be distributed using primary horizontal distribution backbones with valved branches to laboratory bays. Individual branches shall be spaced at a maximum of 20' along each backbone, and shall serve no more than 990 ASF of laboratory or laboratory support.
- (e) Power distribution shall include 42 circuit laboratory panelboards distributed along the backbone, serving no more than 990 ASF of laboratory or laboratory support.
- (f) Each laboratory floor or wing shall have access to 480V power at the main riser and space in the electrical room to allow for future installation of a 480V panelboard and service to equipment.
- (g) Laboratory suites: Academic Research: Wet: Research Laboratory 01: Wet, Academic Research: Wet, Research Laboratory 01A: Synthetic Chemistry, Academic Research: Dry: Research Laboratory 03: Dry, Academic Research: Dry: Research Laboratory 03A: Dry – Dark, Academic Research: Dry: Research Laboratory 03B: Dry – Flex Areas may be constructed as separate individually enclosed laboratory Areas, or as suites that include two laboratory Areas. Suites that include three laboratory Areas may be permitted in the Owner's discretion. Suites may have with no demising walls between the individual laboratory Areas, and may consolidate mechanical and electrical services. Where suites are constructed, layout shall be regular and modular to allow for future demising of laboratory Areas.
- (h) Academic Research; Wet: Research Laboratory 02: Wet Support and Academic Research; Dry: Research Laboratory 04: Dry Support Areas may be constructed as part of the separate

individually enclosed laboratory Areas, or as part of laboratory suites described in Section 3.7.10.6.1(g). Within the suites, support Areas may be combined into larger rooms, or included within the open research laboratory suite. A minimum of 50% of laboratory support Areas shall be in individually enclosed rooms.

3.7.10.6.2 Academic: Research: Wet: Research Laboratory 01: Wet, Academic: Research: Wet: Research Laboratory 01A: Synthetic Chemistry, Academic: Research: Dry: Research Laboratory 03: Dry, Academic: Research: Dry: Research Laboratory 03A: Dry-Dark and Academic: Research: Dry: Research Laboratory 03B: Dry-Flex Areas shall:

- (a) Be designed with modular laboratory casework in accordance with Section 3.7.10.3.1 (Modular Laboratory Bench Casework) of the Technical Requirements and including the following:
 - (i) 12.5 LF of single sided, adjustable height laboratory countertop for each 100 ASF of laboratory;
 - (ii) For each Research Laboratory 01: Wet, Research Laboratory 01A: Synthetic Chemistry and Research Laboratory 03B: Dry-Flex Area, one 4' fixed cabinet with laboratory sink for each 330 ASF of laboratory with pegboard/drying rack;
 - (iii) 12.5 LF of over counter or wall mounted adjustable, 1 tier reagent shelving; and
 - (iv) all necessary end caps, chases and covers.
- (b) Include moveable under-counter cabinets provided in accordance with Section 3.9 (FF&E) of these Technical Requirements.
- (c) Include ceiling mounted service carriers (service panel or service manifolds) aligned with casework, with at least one service carrier for each planned bench location. Panels shall include all services specified for the lab type. Piped services, power and data shall be connected to modular benches through the shelving vertical posts and horizontal raceways, and shall be concealed and protected from impact or damage.
- (d) Include wet piped services, as described in Section 3.7.10.12 (Piped Services Research and Classroom Laboratories) including industrial hot and cold water, domestic cold water and pure water, delivered to each sink and fume hood. Domestic cold water shall be used at all emergency showers and emergency eyewash stations.
- (e) Include horizontal distribution backbones for piped services as described in Section 3.7.10.6.1(d).

- (f) Include in Wet, Synthetic Chemistry and Dry-Flex, Industrial hot and cold water, domestic cold water and pure water piped to the ceiling mounted service carrier over each bench and provided with a factory outlet/point of connection at the service carrier.
- (g) Include dry piped services, (LA and LV) services as described in Section 3.7.10.12 (Piped Services Research and Classroom Laboratories) distributed with outlets at six (6) feet on center along laboratory countertops and to each fume hood. LV services are not required in Academic: Research: Dry: Research Laboratory 03: and Dry, Academic: Research: Dry: Research Laboratory 03A.
- (h) Include power and data distributed along laboratory countertops as noted in the Area Data Sheets.
- (i) Include lighting, supply and exhaust ducts coordinated with laboratory bench layout to ensure adequate light and air distribution, and air flow.

3.7.10.6.3 Academic: Research: Wet: Research Laboratory 02: Wet Support Areas, and Academic: Research: Wet: Research Laboratory 04: Dry Support Areas shall be designed to provide flexible support space for research laboratories. Support space equipment shall be owner furnished and installed, except for specified fumehoods. Support space shall:

- (a) be designed with modular laboratory casework systems in accordance with Section 3.7.10.3.1 (Modular Laboratory Bench Casework) of the Technical Requirements and including the following:
 - (i) 6 LF of wall mounted single sided, adjustable height laboratory countertop for each 100 ASF of support space;
 - (ii) one 4' fixed cabinet with laboratory sink for each 330 ASF of support with pegboard/drying rack; and
 - (iii) All necessary end caps, chases and covers.
- (b) Include moveable under-counter cabinets provided in accordance with Section 3.9 (FF&E) of these Technical Requirements;
- (c) Include piped services, power and data located on perimeter walls;
- (d) Include wet piped services, as described in Section 3.7.10.12 (Piped Services Research and Classroom Laboratories) including industrial hot and cold water, domestic cold water and pure water, delivered to each sink and fume hood. Domestic cold water shall be used at all emergency showers and emergency eyewash stations;

- (e) Include dry piped services, (LA and LV) services as described in Section 3.7.10.12 (Piped Services Research and Classroom Laboratories) distributed with outlets at six (6) feet on center along three of four walls;
- (f) Include power and data distributed along perimeter walls and wiremold or similar power duct along three of four walls to provide 120V and 208V power outlets at 4' on center, and data ports at 4' on center; and
- (g) Include lighting, supply and exhaust ducts coordinated with laboratory bench layout to ensure adequate light and air distribution, and air flow.

3.7.10.6.4 Academic: Research: Performance: Research Laboratory 07: Studio Areas shall be a fully finished space in accordance with the Area Data Sheet and the following requirements:

- (a) Plumbing with domestic hot and cold water and sanitary sewer shall be stubbed to the space to allow for future installation of a sink. The plumbing stubs shall be capped within the wall assembly;
- (b) The Area shall have the capacity to add a dedicated exhaust system to outside air. This shall include a planned, accessible route from the lab to a point of discharge at a minimum height of 30' above adjacent grade, and a planned location for exhaust fan system. The fan and duct riser are not part of the 2020 project;
- (c) The Area be located on the ground floor with no basement programmed area below;
- (d) The Area shall be located such that it is readily accessible by the public for shows, events or displays'
- (e) Public access provisions shall include location close to public entrances, amenities and restrooms such that:
 - (i) the public can enter the Area and access restrooms and other Building amenities without needing access into other Area within the Building areas, and
 - (ii) access to the remainder of the Building can be limited to authorized users.

3.7.10.6.5 Chemical Stock Room. Academic: Research Lab Support and Maintenance: Chemical Stock Areas shall be colocated as a single suite. The Chemical Stock Area shall be designed to function as a single central storage and dispensing area.

- (a) The suite shall have secured, controlled access, with limited public access to Chemical Stock Room: Office and staff only access to storage areas;
- (b) The office area shall have a reception counter and lockable service/transaction window; and
- (c) The stock room shall be located adjacent to a loading/staging area.

3.7.10.7 Specific Academic: Classroom Laboratory Requirements

3.7.10.7.1 Academic: Classroom: Class Laboratory: Class Laboratory 1: Wet Areas, Academic: Classroom: Classroom Laboratory: Classroom Laboratory 2: Chemistry Areas, Academic: Classroom: Classroom Laboratory: Classroom Laboratory 3: Organic Chemistry Areas, and Academic: Classroom: Classroom Laboratory: Classroom Laboratory 4: Dry Areas shall:

- (a) be structured to allow for moveable student work stations in the center of the Classroom Laboratories, with fixed counters, wall cabinets, fumehoods and sinks located around the perimeter. All counter tops shall be epoxy. Instructor work stations shall be moveable, but shall include one fixed, plumbed/powered pedestal with base cabinet;
- (b) include LA and LV services as described in Section 3.7.10.12 (Piped Services Research and Classroom Laboratories) which shall be distributed with outlets at six (6) feet on center along perimeter counters, at instructor station, and in each fumehood;
- (c) include wet piped services, including industrial hot and cold water, domestic cold water and pure water, which shall be delivered to each sink and fumehood. Domestic cold water shall be used at all emergency showers and emergency eyewash stations;
- (d) include cup sinks at all fumehoods; and
- (e) include drains for sinks that shall be acid resistant from sink to the point of connection of the Building's main sanitary waste pipe.

3.7.10.7.2 Academic: Classroom: Class Laboratory 6: Studio Specific Requirements

- (a) Academic: Classroom: Class Laboratory: Class Laboratory 6: Studio Areas shall be a fully finished space in accordance with the corresponding Area Data Sheet in Appendix 6 (Area Data Sheets) of the Technical Requirements. Plumbing with domestic hot and cold water and sanitary sewer shall be stubbed to the space to allow for future installation of a sink. The plumbing stubs shall be capped within the wall assembly.

- (b) Academic: Classroom: Class Laboratory: Class Laboratory 6: Studio Areas shall have the capacity to add a dedicated exhaust system to outside air. This shall include a planned, accessible route from such Area to a point of discharge at a minimum height of 30 feet above adjacent grade, and a planned location for exhaust fan system. The fan and duct riser are not required as part of the Project.
- (c) Academic: Research: Performance: Research Laboratory 07: Studio and Research Laboratory 08: Studio Support Areas shall be on the ground floor of a Building, with no programmed function below.

3.7.10.8 Specific Vivarium Requirements

- (a) Academic: Research: Core Lab: Research Laboratory 14: Vivarium Suite Areas shall be designed and constructed to house research animals including small mammals (up to rabbit), reptiles and amphibians, and fish. The vivarium shall include an ABSL3 suite.
- (b) The Vivarium shall be fully compliant with all appropriate research laboratory standards, and suitable for accreditation by AAALAC. Accreditation shall be obtained by Owner and Developer shall be responsible for all necessary Work to ensure the Vivarium complies with AAALAC accreditation requirements. The ABSL3 portion of the Vivarium shall meet all requirements for certification or accreditation by approving agencies, including NIH and NSF.
- (c) The interior of the Vivarium shall be designed and constructed to withstand washing with pressure hoses, high ambient humidity and high impact from movable equipment. Walls shall be designed as CMU or high impact, moisture resistant board. In the event metal stud and board construction is used, all openings must be sealed to eliminate vermin intrusion. Floor, wall and ceiling finishes shall be chemical resistant, seamless finish. Interior doors shall be stainless steel or FRP. All exposed metal, including door and window frames, cabinets, trim, light fixtures, and HVAC outlets, shall be stainless steel. Cabinetry shall be stainless steel. All spaces outside the ABSL3 suite shall have floor drains with accessible, cleanable traps. Floor drains shall be provided in the ABSL3 suite except where prohibited by NSF, NIH AALAC or other accreditation requirements. If floor drains are installed, they shall be deep trap and have accessible, cleanable traps. All penetrations shall be sealed or gasketed to allow for pressurization and infection control. All heat or steam generating equipment shall have dedicated canopy hoods or equivalent type of exhaust.
- (d) All serviceable equipment shall be accessible without disrupting the operations of the Facility or compromising the integrity of the

space or the Facility Systems within such Facility, and without requiring re-inspection or recertification to maintain accreditation. Regularly serviced equipment must not require entry into animal rooms, procedure rooms, sterile areas, or the ABSL3 suite.

- (e) The Vivarium shall include a minimum of six (6) animal holding rooms, each two hundred eighty-eight (288) ASF in area, with anterooms. Two (2) of the animal holding rooms shall be within the ABSL3 suite. The animal holding rooms shall incorporate ventilated cage rack systems. For the non-ABSL3 suites the basis of design is Allentown P/NC Rack 75J AG, or of equal or better quality and specifications, for mice or similar for other species. For the ABSL3 rooms, the basis of design is Lab Products bCon, or products of equal or better quality and specifications.
- (f) Each room shall include all necessary duct, piping and power infrastructure to support the ventilated cage racks. Anterooms shall include fold-down note taking desks as built-in equipment. Animal holding rooms shall have one sink in each room, one hose reel, and industrial hot and cold water and pure water piped services, as described in Section 3.7.10.12 (Piped Services Research and Classroom Laboratories) of these Technical Requirements. Pure water shall be piped to a minimum of two wall mounted outlets and to the sink. Industrial hot and cold water shall be piped to the sink and hose reel. Rooms shall have floor drains with accessible cleanable traps. Rooms shall be on independent air conditioning loops to provide for colony protection.
- (g) Holding rooms shall be configured with clean and dirty corridor layout to allow future conversion for ABSL3 or barrier configurations. Clean corridors shall include an anteroom with shower, locker and gowning facilities.
- (h) The Vivarium shall include a minimum of four (4) procedure rooms, each one hundred (100) ASF in area. One (1) of such procedure rooms shall be in the ABSL3 suite. The procedure rooms shall be configured for surgery/necropsy, and shall include a small animal surgical/necropsy table, surgical light, one BSL2 bio-containment safety cabinet workstation, built in base and wall cabinets and sink. Procedure rooms shall have piped industrial hot and cold water, and pure water at the sink, piped lab air and vacuum, and piped anesthetic gas and oxygen from rack mounted bottle manifolds to surgical tables. Room ventilation shall include anesthetic scavenger exhaust system.
- (i) The ABSL3 suite shall include two of the animal holding rooms and one procedure room. The suite shall meet ABSL3 requirements in all respects, and shall include necessary anterooms, showers, gowning areas and air locks for personnel entry and exit. The

suite shall include provision for washing and decontamination of equipment including cages and cage racks. All areas shall include exhaust capture and scrubbing for decontamination gas (Chlorine Dioxide or Hydrogen Peroxide) usage. The suite shall include, at a minimum, two 36 inch door pass-through sterilizer/autoclaves for inbound and outbound sterilization, one 36 inch single sided sterilizer/autoclave within the suite, one BSL3 bedding dump station, and one BSL3 bio-containment safety cabinet workstation. Autoclaves shall be certified for use in ABSL3 suites.

- (j) In addition to the procedure rooms, the vivarium shall include three (3) core rooms, each two hundred eighty-eight (288) ASF in area, and suitable for use for imaging, cryopreservation or behavioral assessment. Each core room shall include, twelve (12) feet of base and wall cabinets with one sink. Piped services in each room shall include laboratory air, laboratory vacuum, industrial hot and cold water, domestic cold water and pure water. The cryopreservation core room and the behavioral assessment rooms shall each include one BSL2 bio-containment hood.
- (k) The Vivarium shall include a cage wash/decontamination area which shall include one ventilated manual bedding disposal station, one eighty four (84) inch door single sided autoclave, one eighty-four (84)-inch cage and rack washer. The basis of design for the cage and rack washer shall be Getinge GEW 2100 LS or product of equal or better quality and specifications.
- (l) The Vivarium shall include a central services area, including, at a minimum two administrative offices, break/lunch room, general storage areas, central storage for clean supplies, waste handling area, including processed waste holding, cage preparation area, clean and dirty loading docks. The clean storage shall include one thirty-six (36)-inch pass-through autoclave and eight (8) feet of base and wall cabinet with a sink. The cage preparation area shall include a manual bedding dispenser and bottle filling station. The central services area shall include a secured, lockable controlled substances cabinet.
- (m) The Vivarium shall also be accessible through a loading dock at the rear of such Facility.

3.7.10.9 Specific BSL3 Suite Requirements

- (a) Academic: Research: Core Lab: Research Laboratory 16: BSL3 Suite Areas shall be designed and constructed to house BSL3 level research at tissue or cellular sample levels.
- (b) Academic: Research: Core Lab: Research Laboratory 16: BSL3 Suite Areas shall be fully compliant with all appropriate research

laboratory standards, and suitable for certification by NIH and NSF, and accreditation by any other agency required for the conduct of such research. Certification shall be sought and obtained by Owner and Developer shall be responsible for all Work necessary to ensure the BSL3 suite meets NIH and NSF certification requirements.

- (c) The interior of the Academic: Research: Core Lab: Research Laboratory 16: BSL3 Suite Areas shall withstand washing and high impact from moveable equipment. Walls shall be high impact, moisture resistant board. Floor, wall and ceiling finishes shall be chemical resistant, seamless finish. Interior doors shall be stainless steel or FRP. All exposed metal, including door and window frames, cabinets, trim, light fixtures, and HVAC outlets, shall be stainless steel. Cabinetry shall be stainless steel. All spaces shall have floor drains except where prohibited by NIH and/or NSF, or other accreditation agency. Where floor drains are installed they shall have deep seal accessible, cleanable traps. All penetrations shall be sealed or gasketed to allow for pressurization and infection control. All heat or steam generating equipment shall have dedicated canopy hoods or equivalent type of exhaust. User convenience power shall be distributed at appropriate voltages as required by uses, built-in equipment and FF&E, with a minimum of twenty-five percent (25%) spare capacity at panelboards.
- (d) All serviceable equipment shall be accessible without disrupting the operations of the Facility or compromising the integrity of the space or the Facility Systems, and without requiring re-inspection or recertification to maintain certification. Regularly serviced equipment must not require entry into the BSL3 suite.
- (e) Academic: Research: Core Lab: Research Laboratory 16: BSL3 Suite Areas shall include a minimum of three (3) 300 ASF laboratories/procedure rooms. Each room shall be isolated from the others to prevent cross contamination. The rooms shall have relocatable laboratory casework with base cabinets, stainless counter tops, sinks and overhead service carriers. Each room shall have three (3) bio-safety hoods with BSL3 classification. The rooms shall have wiremold or similar power duct along two of four walls to provide 120V and 208V power outlets at four (4) feet on center, and data ports at four (4) feet on center. Piped services shall include industrial hot and cold water, and pure water at the sink, piped lab air and vacuum at lab benches.
- (f) Academic: Research: Core Lab: Research Laboratory 16: BSL3 Suite Areas shall include one specimen storage room with an area of three hundred (300) ASF and with provision for User installed refrigerators or freezers. The specimen storage room shall include capacity for User installed compact shelving units and shall have a

floor loading capacity of three hundred (300) psf. The room shall have wiremold or similar power duct along three four walls to provide 120V and 208V power outlets at four (4) feet on center, and data ports at four (4) feet on center.

- (g) Academic: Research: Core Lab: Research Laboratory 16: BSL3 Suite Areas shall meet BSL3 classification requirements, and shall include necessary anterooms, showers, gowning areas, circulation corridors and air locks for personnel entry and exit. The suite shall include provision for washing and decontamination of equipment. All areas shall include exhaust capture and scrubbing for decontamination gas (chlorine dioxide or hydrogen peroxide) usage. The BSL3 suite shall include, at a minimum, two (2) thirty-six (36)-inch door pass-through autoclaves for inbound and outbound sterilization, one (1) thirty-six (36)-inch single sided autoclave within the suite. Autoclaves shall be certified for use in BSL3 suites.

3.7.10.10 Specific Greenhouse Requirements

3.7.10.10.1 Academic: Research: Core Lab: Research Laboratory 15: Greenhouse Areas shall be designed and constructed in accordance with the requirements of this Section 3.7.10.10 to house plant research and to provide a controlled, isolated growing environment for research crops.

3.7.10.10.2 Academic: Research: Core Lab: Research Laboratory 15: Greenhouse Areas shall be located such that the plant growth portions are unshaded at all times, and shall include a minimum of 20,000 SF of open site suitable for growing open air crops. The 20,000 SF of open site may be located separate from the Greenhouse Areas.

3.7.10.10.3 Academic: Research: Core Lab: Research Laboratory 15: Greenhouse Areas shall include seven hundred (700) ASF of headhouse facilities to include:

- (a) Two hundred (200) ASF of greenhouse service area, including clean supply storage, soil mixing tables, tool storage and associated equipment. Service area shall include two (2) utility sinks with soil traps. Piped services include industrial hot and cold water, domestic hot and cold water and pure water. Equipment includes twenty (20) LF of work bench with shelving below;
- (b) Two hundred (200) ASF of growth chamber/germination chamber rooms. Rooms shall include two (2) utility sinks with soil traps. Piped services shall include industrial hot and cold water, domestic hot and cold water, pure water and four (4) piped specialty gasses from cylinder manifolds. Specialty gasses include CO₂, Nitrogen, Argon and one (1) spare. Cylinder racks and manifolds shall be located in a cylinder closet accessible from outside the facility. Specialty gasses shall be piped to wall mounted outlets set at six

(6) feet above floor level, at six (6) feet on center along three (3) walls. Equipment includes eight (8) LF of stainless steel work bench with shelving below;

- (c) Growth chamber/germination rooms shall have wiremold or similar power duct along three four walls to provide 120V and 208V power outlets at four (4) feet on center, and data ports at four (4) feet on center;
- (d) Developer shall provide growth chambers and germination chambers in accordance with the Area Data Sheets and Section 3.9 (FF&E) of these Technical Requirements;
- (e) Two hundred (200) ASF of administrative area, including administrative work stations, break/lunch room, lockers and changing areas; and
- (f) One hundred (100) ASF of sample preparation/packaging area. The sample preparation/packaging area shall include 10 LF of stainless steel base cabinet with epoxy top with sink and one chemical fume hood. Piped services include industrial hot and cold water, domestic hot and cold water, pure water and four piped specialty gasses from cylinder manifolds.

3.7.10.10.4 Plant growing areas shall be divisible into up to six (6) research zones with independent air systems to prevent cross contamination. Zone division shall be capable of preventing passage of pests and air or water borne substances, including pollen and pathogens.

3.7.10.10.5 The exterior envelope (walls and roof) of the plant area of the Academic: Research: Core Lab: Research Laboratory 15: Greenhouse Areas shall be framed glass or poly-carbonate above three (3) feet from ground level, and shall have a maximum air leakage of 0.4 cfm/SF with doors, windows and vents closed. All glazing shall include roller shades with two levels of shading, one for solar (sunburn) protection, and one (1) for blackout. Glazing shall have operable vents.

3.7.10.10.6 All construction in the Academic: Research: Core Lab: Research Laboratory 15: Greenhouse Areas shall withstand washdown with high pressure hoses, high ambient humidity, and high impact from moveable equipment. Walls shall be CMU or high impact, moisture resistant board. If metal stud and board construction is used, all openings must be sealed to eliminate vermin intrusion. Floor, wall and ceiling finishes shall be chemical resistant, seamless finish. Interior doors shall be aluminum, stainless steel or FRP. All exposed metal, including door and window frames, cabinets, trim, light fixtures and HVAC outlets, shall be aluminum or stainless steel. Cabinetry shall be wood, aluminum or stainless steel. All spaces shall have floor drains with accessible, cleanable traps. All penetrations shall be sealed or gasketed to allow for pressurization. All heat or steam generating equipment shall have dedicated canopy hoods or equivalent exhaust.

3.7.10.10.7 All systems or equipment located above three (3) feet in the plant growth areas shall be transparent, or located to minimize shadow on the plant growth benches. Large equipment elements shall not be permitted. All serviceable equipment shall be accessible without disrupting the facility operations or compromising the integrity of the space or the systems. Regularly serviced equipment must not require entry into plant growth areas.

3.7.10.10.8 Plant growth areas shall have built in plant growth benches. Benches shall be wood, aluminum or stainless steel and shall have open shelving below. Growth areas shall have one utility sink with soil trap for each growth zone, and one hose reel. Piped services include LA, LV, industrial hot and cold water, domestic cold water, and PW. Services will be piped to each sink. Industrial cold water and pure water shall be piped to growth benches, with outlets at 15 feet on center along benches. Industrial hot and cold water shall be piped to each hose reel. Power outlets shall be located at six (6) feet on center along plant growth benches.

3.7.10.10.9 Plant growth areas shall have laboratory quality air conditioning systems, with 100% outside air and temperature control. Temperature control and ventilation shall be integrated with glazing ventilation to provide a unified controlled system.

3.7.10.10.10 Plant growth areas shall have full spectrum growth lamps capable of providing controlled solar-equivalent lighting.

3.7.10.10.11 The Academic: Research: Core Lab: Research Laboratory 15: Greenhouse Areas may be accommodated separate from other Facilities in unconditioned and unoccupied space that meets the requirements applicable to Non-Assignable Spaces: Interior: Utility Structure Areas.

3.7.10.11 Specific Shared Instrument Suite Requirements

3.7.10.11.1 Academic: Research: Core Lab: Research Laboratory 13: Shared Instrument Suite Areas shall be designed and constructed to accommodate a range of analytical and diagnostic equipment. The specific instrumentation will be provided by the Owner.

3.7.10.11.2 The suite shall include:

- (a) three 500-ASF instrument rooms;
- (b) six 250-ASF instrument rooms; and
- (c) one 500-ASF storage room.

3.7.10.11.3 Instrument rooms shall include two (2) utility sinks. Piped services shall include LA, LV, industrial hot and cold water, domestic hot and cold water, and PW. Piped gasses shall be piped to wall mounted outlets set at six (6) feet above floor level, at six (6) feet on center along three walls. Piped wet services shall be piped to the sinks and the fume hoods. Equipment includes 20 LF of laboratory base cabinets, countertops and wall cabinets in each room and one (1) six-foot chemical fume hood for each of the 500 ASF rooms. Rooms shall have wiremold or similar power duct along

three of four walls to provide 120V and 208V power outlets at four (4) feet on center, and data ports at four (4) feet on center.

3.7.10.11.4 The storage room shall have provision for user installed refrigerators or freezers. The storage room shall include capacity for user installed compact shelving units and shall have a floor loading capacity of 300 psf. The room shall have wiremold or similar power duct along three four walls to provide 120V and 208V power outlets at four (4) feet on center, and data ports at four (4) feet on center.

3.7.10.12 Piped Services for Research and Classroom Laboratories

The piped services to be designed and constructed by Developer and described in this Section 3.7.10.12 shall be referred to as the “Piped Services” throughout these Contract Documents.

3.7.10.12.1 General

- (a) All piped services shall be complete systems, including all necessary valves, receivers, holding tanks, drain points and associated equipment. The systems shall be of suitable material to ensure maintenance of purity and cleanliness of the supply, and shall be sized to ensure maintenance of supply pressure and flow at peak use. All systems shall be purged and sanitized prior to operations.
- (b) Systems shall include valves at each lateral from the horizontal distribution to allow for local modification without close down or disruption to adjacent users, and without requiring recharging or commissioning.
- (c) Meters shall be provided at each floor on all wet systems.

3.7.10.12.2 Laboratory Air (LA)

Developer shall design and construct a complete laboratory compressed air system, including all required pumps, piping, outlets and associated equipment. The LA system shall be capable of providing 0.5 scfm at one hundred (100) psi air and fifteen (15) psi air at specified outlets. The air shall be dry and oil free. Lab air piping shall be high purity copper.

3.7.10.12.3 Laboratory Vacuum (LV)

Developer shall design and construct a complete laboratory vacuum system, including all required pumps, piping, outlets and associated equipment. The LV system shall be capable of maintaining a vacuum of 19 inches of mercury at the farthest terminal at peak demand and providing 0.5 scfm at each terminal. Lab vacuum piping shall be high purity copper.

3.7.10.12.4 Pure Water (PW)

- (a) Developer shall design a complete pure water system, including all required pure water generation, pumps, piping, outlets and associated equipment. The PW generator will be procured independently by the Owner based on the design from Developer. Developer shall construct all elements of the PW system and shall coordinate with Owner selected vendor for the PW generator to ensure the PW system is fully functional at the applicable Occupancy Readiness Date. The PW system shall supply Reverse Osmosis (RO) / Deionization (DI) water to Type II (1 megohm) standards in accordance with American Society for Testing and Materials (ASTM) D1193-91.
- (b) The PW system shall be designed as circulating type with features to minimize bacterial colonization, regardless of required water quality. Two hundred fifty-four (254) nm UV light and submicron filters shall be provided for all systems. The distribution system shall be designed to maintain the temperature of the water under 29°C (85°F). Where it is determined the system could be subject to infrequent use and temperature climb in excess of heat dissipation rates, the use of a sanitary heat exchanger and/or VSD controlled circulation pumps shall be considered to minimize purge waste.
- (c) Drains receiving waste water from high purity water systems and production equipment shall be routed to the corrosion resistant laboratory waste piping system. RO water may discharge to the sanitary piping systems where required, however connection to corrosion resistant piping systems is preferable and required where deionization or stills are employed.
- (d) The PW system shall be of the constantly circulating type, designed such that a minimum velocity corresponding with a turbulence Reynolds Number (Re) of not less than ten thousand (10,000) is achieved under all conditions, including peak design demand. The system shall be designed to provide a minimum use pressure of 20 psi at outlets (after polishers), and maximum pressure shall not exceed 80 psi, with a capacity at each outlet of one (1) gpm.
- (e) Dead-legs in distribution and return piping shall be limited to six (6) pipe diameters in length. All branches shall be circulated. A rotameter and sanitary diaphragm-type valve shall be provided in the return line from each laboratory floor to permit proper balancing and visual indication of flow. The piping system distribution on each floor shall be independent of other floors to the connection with the main supply and return riser. Appropriate sampling and sanitation ports shall be provided. Circulation

pumps shall be constructed of Type 316 stainless steel and should be arranged to provide operational redundancy.

- (f) PW Piping shall be chlorinated polyvinyl chloride.

3.7.10.12.5 Specialty Gasses

Where specialty gasses are specified in the Technical Requirements, piping from gas cylinder racks to point of use shall be provided. Piping, valves outlets and connections shall be of a type and material suitable for the specified gas. Manifolds shall include provision for two cylinders connected to the piped system at any one time, with valving to allow cut over between cylinders, and replacement of one cylinder without deactivating the system.

3.7.10.12.6 Equipment Cooling Water

Developer shall design and construct a cooling water loop for equipment heat rejection. The cooling water loop shall, at a minimum serve the Academic: Research: Wet: Research Laboratory 02: Wet Support Areas and Academic: Research: Dry: Research Laboratory 04: Dry Support Areas.

3.7.10.12.7 Laboratory Waste

Developer shall design and construct a laboratory waste system. Laboratory protocols prohibit the use of the laboratory waste system for chemical disposal and the system shall not be intended to convey chemicals. The laboratory waste system shall be chemical resistant to the point of adequate dilution. All sink outlets, traps and waste lines shall be acid resistant, Duriron, Fuseal or of equal or better quality and specifications.

3.7.11 Specific Academic Space Requirements

3.7.11.1 Colloquy Spaces

3.7.11.1.1 Academic: Colloquy Spaces Areas shall be designed to foster interaction and informal scholarly gatherings. Spaces in the design shall provide a range of sizes to accommodate varying needs, from small gatherings and discussions to larger structured sessions. Spaces shall be distributed and adjacent to other academic uses.

3.7.11.1.2 The spaces may be normally open to corridors or circulation areas.

3.7.11.2 Classroom 1: 299 Seat, Stepped Seating

Academic: Classroom: Classroom 1: 299 Seat, Stepped Seating Areas shall comply with the following requirements:

- (a) Classroom 1: 299 Seat, Stepped Seating Area shall be suitable for lectures, science demonstrations and small group performances. The open floor area for presentation shall have minimum dimensions of 25 feet wide by 15 feet deep, and shall be raised, as

required, to allow for uninterrupted User sight lines from all User seats within the room;

- (b) All areas of the teaching wall and presentation area shall have uninterrupted sight lines from all User seats;
- (c) The teaching wall shall include an epoxy laboratory sink with domestic hot and cold water. The sink shall be counter mounted and have closeable cover to conceal sink when not in use;
- (d) Classroom 1: 299 Seat, Stepped Seating Area shall have direct access to a storage room with service sink from the lecturer end of the classroom, with the ability to roll a moveable cart or other presentation materials between the rooms. The storage room shall have access to the classroom and corridor; and
- (e) Classroom 1: 299 Seat, Stepped Seating Area shall be adjacent to other Academic Areas.

3.7.11.3 Classroom 2: 90 Seat (TEAL), Flat Floor

Academic: Classroom: Classroom 2: 90 Seat (TEAL), Flat Floor Areas shall comply with the following requirements:

- (a) Classroom 2: 90 Seat (TEAL), Flat Floor Areas shall be suitable for interactive technology enhanced teaching. The Area shall have multiple display points to allow small groups to collaborate and display work product;
- (b) All areas of the teaching wall and individual displays shall have uninterrupted sight lines from all User seats; and
- (c) Classroom 2: 90 Seat (TEAL), Flat Floor Areas shall be adjacent to other Academic Areas.

3.7.11.4 Academic: Classroom 3: 90 Seat, Flat Floor

Academic: Classroom: Classroom 3: 90 Seat, Flat Floor Areas shall comply with the following requirements:

- (a) Classroom 3: 90 Seat, Flat Floor Areas shall be suitable for lectures, science demonstrations and small group performances. The open floor area for presentation shall have minimum dimensions of 25 feet wide by 10 feet deep, and shall be raised, as required, to allow for uninterrupted User sight lines from all User seats within the room. If a raised stage is provided, it shall be wheelchair accessible, and the stage shall be removable;
- (b) All areas of the teaching wall and presentation area shall have uninterrupted sight lines from all User seats and

- (c) Classroom 3: 90 Seat, Flat Floor Areas shall be adjacent to other Academic Areas.

3.7.12 Specific Academic Offices and Work Stations Requirements

3.7.12.1 Academic Office

3.7.12.1.1 Academic: Offices Areas supporting Academic: Research Areas shall be located at a walking distance no farther than one hundred (100) feet to their associated research laboratory. Research Laboratory 06: Computational, Small Areas do not have offices associated with them.

3.7.12.1.2 Academic: Research: Computational: Research Laboratory 06: Computational, Small Areas must be co-located with Academic: Research: Computational: Research Laboratory 05: Computational, Large Areas.

3.7.12.1.3 Academic support spaces, including lobbies, reception, conference rooms, huddle rooms, etc., shall be proportionately distributed through the program area served, and located with a minimum of one per suite.

3.7.12.2 Student and Staff Work Stations

- (a) Graduate student work stations shall be located close to the Academic: Office Areas occupied by their respective principal investigator and clustered in a four (4) student per each principal investigator ratio.
- (b) Research staff shall be located close to the Academic: Office Areas occupied by their respective principal investigator and clustered in the following staff to principal investigator ratios:
 - (i) Research Laboratory 01: Wet (including synthetic chemistry): 90 (45 offices);
 - (ii) Research Laboratory 03: Dry (including flex and dark: 90 (45 offices);
 - (iii) Research Laboratory 05: Computational, Large: 12 (6 offices);
 - (iv) Research Laboratory 07: Studio: 0
Total: 192
- (c) Work stations shall not occur in clusters of more than 16 work stations.
- (d) Each work station cluster shall be separated visually and acoustically.

3.7.13 Specific Housing Requirements

3.7.13.1 Emergency Egress Windows

Developer shall provide emergency egress windows in Housing Areas. Windows shall have security stoppers to limit opening.

3.7.13.2 Balconies

Balconies are prohibited in Housing Areas.

3.7.13.3 Adjacency Requirements

- (a) Those Areas designated as Housing: Apartments: Staff/Faculty in Residence shall be adjacent to Housing: Residence Hall Areas.
- (b) Those Areas designated as Housing: Apartment: Graduate shall be isolated from those Areas designated Housing: Residence Hall.
- (c) Housing: Residence Hall: Admin: Workstation 01 Areas, Housing: Residence Hall: Admin: Office 02: Administrator, Housing: Residence Hall: Admin: Workstation 02, Housing: Residence Hall: Admin: Workroom and Housing: Residence Hall: Admin: Mail/Receiving Areas shall be located in a central area adjacent to one (1) housing building.
- (d) Housing: Residence Hall: Community: Laundry Areas and Housing: Support & Maintenance Areas must be distributed evenly throughout the Housing Areas, with a minimum of one for each Building that includes Housing: Residence Hall Areas.

3.7.13.4 Distribution Requirements

3.7.13.4.1 Developer shall deliver the minimum total ASF indicated in the “Total ASF” column in Appendix 1-B (Program Elements) of the Technical Requirements for each of the following Housing: Residence Hall: Community Area Types - Lounge, Social (Students), Multi-Purpose Room, Study Room and Recreation/Gaming Areas in accordance with the following requirements:

- (a) A minimum of one of each of these specific Area Types must be located on the ground or public floor of each building that includes Housing: Residence Hall Areas);
- (b) Each of these specific Area Types, when located on the ground or public floor, must have two (2) points of access, one within the interior of the Building that provides access to residents of the Building twenty-four (24) hours a day, seven (7) days a week, and one exterior access, for Users in general, that will be access-controlled;

- (c) A minimum of one Lounge, Social (Students) Area and one Study Room Area must be located on each floor that includes Housing: Residence Hall: Bedroom: Single, Housing: Residence Hall: Bedroom: Double, or Housing: Residence Hall: Bedroom: Triple Areas, with at least one Lounge, Social (Students) Area and one Study Room Area provided for every 60 beds, located on the same floor and within the same wing as the bedrooms served;
- (d) If Developer provides additional Lounge, Social (Students) Areas in any 60 bed group, the Owner will, in its discretion, allow minor deviations from adjacency, distribution, daylighting and specific area ASF requirements for both the required Lounge, Social (Students) Area and any additional Lounge, Social (Students) Areas;
- (e) If Developer provides additional Study Room Areas in any 60 bed group, the Owner will, in its discretion, allow minor deviations from adjacency, distribution, daylighting and specific area ASF requirements for both the required Study Room Area and any additional Study Room Areas; and

3.7.13.4.2 Any minor deviations as described in Sections 3.7.13.4.1(d) and (e) shall be determined during the design review process.

3.7.13.5 Student Housing Area Bathrooms

3.7.13.5.1 Minimum fixture counts in the Housing: Residential Hall Area bathrooms shall comply with the following requirements:

- (a) when Bedroom Areas are occupied as designed (one resident in single bedrooms, two in double bedrooms and three in triple bedrooms):
 - (i) water closets: one (1) per five (5) students;
 - (ii) showers: one (1) per five (5) students; and
 - (iii) lavatories: one (1) per 3.3 students;
- (b) when Bedroom Areas are occupied at maximum capacity with all single bedrooms are doubled, all double bedrooms are tripled and all triple bedrooms are quadrupled, the minimum number of fixtures required by the CBC.

3.7.13.5.1A In calculating the minimum fixtures pursuant to Section 3.7.13.5.1 of the Technical Requirements, Developer may include the all plumbing fixtures that serve a set of rooms, including those provided in ADA and gender inclusive bathrooms.

3.7.13.5.2 Shared bathrooms shall not have urinals, shall be universally accessible and shall include at a minimum one (1) accessible shower and one (1) accessible water

closet. Bathrooms shall be designed to be able to be assigned as men's or women's bathrooms by user as required by housing floor occupancy. Shared bathrooms shall not have compartments containing both showers and WCs. All fixtures shall be individually accessible and in individual compartments/cubicles.

3.7.13.5.3 At least two (2) shared bathrooms and one gender inclusive bathroom shall be within 100 feet of, and on the same floor as, each student room to allow for access to at least one (1) men's and one (1) women's restroom, and one gender inclusive bathroom.

3.7.13.5.4 Restroom fixture counts shall be proportional to the rooms served by that restroom.

3.7.13.5.5 All shower stalls shall have solid, floor to ceiling walls and full height doors, to ensure full privacy. Shower stalls shall be individually vented. Fabricated toilet partitions may be used for showers and water closets.

3.7.14 Specific Athletic and Recreational Facilities Requirements

3.7.14.1 Fields: Competition

3.7.14.1.1 Nonassignable Spaces: Exterior: Fields: Competition Area shall be constructed adjacent to the Student Life: Athletics: Fields Areas.

3.7.14.1.2 Play surface shall be installed in full compliance with NCAA Division II standards suitable for a range of competition sports. Minimum play surface shall be one hundred and twenty (120) yards by eighty (80) yards, orientated North/South. Field markings shall be the responsibility of the Owner.

3.7.14.1.3 Spectator areas shall face east for both the home and visitor teams, and be designed to support paid attendance at events, including fencing at the perimeter with appropriate controlled entry and exit points, and vehicular access. Entry points shall be limited to a maximum of three (3) controlled entries. Exit points shall be designed to meet anticipated pedestrian egress flows. Vehicular access shall be adequate for maintenance vehicles and ambulances. Developer shall supply and install equipment or systems to control ingress and egress at entry and exit points.

3.7.14.1.4 Spectator area shall be designed and constructed to allow for the placement of moveable bleachers for up to five hundred (500) spectators. Moveable bleacher area shall be level and adequate for bleacher placement and movement to allow bleachers to be relocated to other venues on the campus, or for storage. Fences and gates shall be designed to facilitate bleacher relocation. Bleacher area surface shall be suitable for bleacher wheel system. Spectator area shall be designed to accommodate future permanent fixed bleacher seating for three thousand (3,000) spectators.

3.7.14.1.5 Intentionally deleted.

3.7.14.1.6 Team bench area shall include adequate space for teams, including coaches, team support staff and equipment.

3.7.14.1.7 Public address: provide a public address system designed to be heard clearly in all areas of the Facility and including input and mixer rack, amplifier, distribution wiring and speakers. All exposed elements shall be weather proof. Input devices will be provided by the Owner. Input location shall be coordinated with the overall design and the Owner.

3.7.14.1.8 Intentionally deleted.

3.7.14.1.9 Vehicular Access and drop off areas: Bus and POV drop off zones shall be provided at the entrance to the competition field and the locker room facilities. Service vehicle access shall be provided to the buildings within the Nonassignable Spaces: Exterior: Fields: Competition Area, and to allow for emergency vehicle service. Parking for up to two hundred (200) POV stalls shall be located within a five (5) minute walk from the Facility.

3.7.14.1.10 Nonassignable Spaces: Exterior: Fields: Competition Areas, not including spectator areas, shall be able to accommodate temporary seating for five thousand (5000) spectators and a stage with dimensions of forty (40) feet by sixty (60) feet.

3.7.14.1.11 Nonassignable Spaces: Exterior: Fields: Competition Areas may not be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements.

3.7.14.1.12 Materials:

- (a) Sod: Big Roll (30 inches wide by 50 feet long), machine-cut, $\frac{3}{4}$ -inch thickness, strongly rooted, certified turf grass sod, free of weeds, non-organic contaminants and undesirable native grasses. Sod shall be grown on a sand based medium similar to the root zone material. Sod shall extend a minimum of 10' beyond the playing surface. The following types are acceptable:
 - (i) Tifway 419 Hybrid Bermuda grass sod; or
 - (ii) Celebration Bermuda grass sod.
- (b) Root zone material: A blend of processed sand or sandy loam, and organic amendments (humus). The actual blend will depend on specific site conditions, however a general mix of 90% sand/10% organics is desired. The Testing Agent shall establish the final mix design. Root zone shall be a minimum of six (6) inches deep.
- (c) Drainage pipe: High Density Polyethylene Pipe (HDPE), meeting AASHTO designation M294, type SP (perforated, double wall, smooth interior). Drainage pipe shall be laid in stone bedding immediately below root zone material, and of sufficient size and frequency to ensure adequate field drainage.

- (d) Drainage pipe stone bedding: Clean #89 crushed stone, or #78M gravel, both of which shall meet the following gradation: 100% passing the ½" sieve and less than 10% passing the #10 mesh sieve.
- (e) Geotextile fabric: Myrafi 180-N or of equal or better quality and specifications. Geotextile fabric shall be used to line all drainage trenches.
- (f) Soil amendments:
 - (i) lime for pH correction; and
 - (iii) herbicide: apply a pre-emergent the installed topsoil and a post-emergent when weed infestation exceeds 5%.
Reapply post- emergent until weeds are eradicated.

3.7.14.1.13 Performance:

- (a) Sports surface: Sports surface shall be natural grass sod in compliance with Section 3.7.14.1.12 (Materials). Spectator areas shall be a mix of natural grass in compliance with Section 3.7.14.1.12 and paved surfaces. Paved surfaces shall comply with the requirements for walkways, bicycle paths and roadways outlined in the respective Area Data Sheets. Fields: Competition shall have direct vehicular access by paved road to campus road system.
- (b) Sports surface shall be designed and installed with appropriate drainage, soil profile and grass species to provide a uniform playing surface suitable for all weather and season play across the range of anticipated sports. The field shall also be suitable for use for public gatherings, such as graduation.
- (c) Traffic load: suitable for planned vehicle loading. Paving, sod or turf and playing surface shall support delivery truck and ambulance access for all areas. Pavement design shall take turning and drive-off loading into account to prevent rutting and buckling of surfaces.
- (d) Grading tolerances and grade certification: subgrade and rootzone installation shall be made using laser grading methods. Elevations shall not deviate by more than ½" in any 25-foot direction. Certified surveys of top of subgrade and top of rootzone shall be completed and reviewed prior to installation of sod on the root zone.

3.7.14.1.14 Playing Surface Installation

- (a) Preparation of subgrade: the site shall be graded, using laser grading methods, to subgrade elevation with suitable materials. Subgrade shall be compacted to 95% maximum dry density using standard proctor method. Proof rolling shall be performed over entire area. Unsuitable areas shall be removed and replaced. Certified survey shall be performed. Elevations shall not deviate by more than 1/2" in any 25-foot direction.
- (b) Drainage piping: Connect drainage piping to site storm drainage systems, or daylight to ditches or swales. Lay drainage piping at 0.50% minimum slope.
- (c) Preparation of root zone material: install rootzone material in a single lift using laser grading method for elevation control. Certified survey shall be performed. Elevations shall not deviate by more than 1/2" in any 25' direction. Water dry root zone to depth of 4 inches at least 48 hours prior to sodding to obtain a loose friable planting bed.
- (d) Sodding new turf areas:
 - (i) Install new sod during normal sod installation time of year. Do not install during dormant season;
 - (ii) Grass installation: areas to receive sod shall be firm, smooth and the irrigation and drainage system shall be operational. Lay sod within 24 hours from time of harvesting/stripping.
 - (1) Laying sod: form a solid mass with tightly fitted joint, do not overlap. If plastic mesh was used to help harvest big roll sod, this material should be removed and discarded from site.
 - (2) Patches: shall be a minimum size of 24 inches in length and width to match that of the roll.
 - (3) Filling joints: after laying and rolling of sod, fill joints and seams with approved rootzone mixture. Broom or sweep excess material to avoid smothering grass.
 - (4) Top dress sodded field: one lift of 1/8 to 1/4 inch may be required using the same rootzone mix as specified previously.
 - (5) Rolling of turf: initial rolling of the turf after sod installation shall be performed using the lightest weight equipment as practical.

- (6) Irrigation of grass: begin irrigation as sod is completed in any one section and water thoroughly.

3.7.14.1.15 Provide screened chain link fencing, minimum eight (8) foot high, around Nonassignable Spaces: Exterior: Fields: Competition Areas. Landscaping shall be designed to screen loading areas.

3.7.14.1.16 Lighting levels for spectator areas, including the bleachers, and field housekeeping shall be a minimum of 2.0 FC when the space is in use. Lighting is not required when the facility is not in use.

3.7.14.1.17 Sports lighting shall be provided to provide uniformly distributed lighting at 50 FC with a maximum to minimum uniformity ratio of 1.5:1 or better. Lighting systems shall be capable of being upgraded in the future by the Owner to 75 FC. Lighting shall be placed to avoid glare for players or spectators and any neighboring facilities. Lighting standards shall be placed a minimum of twenty (20) feet from field.

3.7.14.2 Fields: Recreation

3.7.14.2.1 Nonassignable Spaces: Exterior: Fields: Recreation for intramural sports and general recreation shall include a minimum of two (2) full sized (soccer/football/lacrosse) fields. Each Exterior: Fields: Recreation shall be able to be laid out for two (2) cross field activities, including soccer events. Exterior: Fields: Recreation shall be placed side by side and designed and constructed such that adequate separation between fields is provided for spectators, equipment and circulation, and to prevent cross interference between games. A minimum of thirty (30)-foot separation shall be provided. Overall dimensions for the combined fields shall be one hundred and fifty (150) yards by one hundred and forty (140) yards.

3.7.14.2.2 Play surface shall be installed to community or high school standards, including:

- (a) Overall grade difference no greater than one (1) foot between any two (2) points on the play surface;
- (b) No grade change or unevenness greater than one (1) inch in any eight (8) feet;
- (c) Drainage adequate to handle ten (10)-year, twenty-four (24)-hour rainfall event without ponding; and
- (d) Drainage adequate to handle a twenty-five (25)-year storm event without flooding.

3.7.14.2.3 Nonassignable Spaces: Exterior: Fields: Recreation may be used for stormwater management and overland flow in the one-hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements, provided access to buildings or other facilities required to be functional is not compromised, and there is no damage to fabric or utilities.

3.7.14.2.4 Surrounding areas (spectator, equipment and player areas) shall be planned and laid out to facilitate anticipated usage patterns. Spectator capacity will be less than one hundred (100), standing.

3.7.14.2.5 The fields shall be fenced, with a minimum height of six (6) feet.

3.7.14.2.6 Bleachers are not required.

3.7.14.2.7 Intentionally deleted.

3.7.14.2.8 Materials

- (a) Sod: Big Roll (30 inches wide by 50 feet long), machine-cut, $\frac{3}{4}$ -inch thickness, strongly rooted, certified turf grass sod, free of weeds, non-organic contaminants and undesirable native grasses. Sod shall be grown on a sand based medium similar to the root zone material. The following types are acceptable:
 - (i) Tifway 419 Hybrid Bermuda grass sod; or
 - (ii) Celebration Bermuda grass sod.
- (b) Root zone material: A blend of processed sand or sandy loam, and organic amendments (humus). The actual blend will depend on specific site conditions, however a general mix of 90% sand/10% organics is desired. The Testing Agent shall establish the final mix design.
- (c) Soil amendments:
 - (i) lime for pH correction; and
 - (ii) herbicide: apply a pre-emergent the installed topsoil and a post-emergent when weed infestation exceeds 5%. Reapply post- emergent until weeds are eradicated.

3.7.14.2.9 Performance

- (a) Sports surface: Sports surface shall be natural grass sod in compliance with Section 3.7.14.1.12 (Materials) of the Technical Requirements. Spectator areas shall be a mix of natural grass, in compliance with Section 3.7.14.1.12 of the Technical Requirements, and paved surfaces. Paved surfaces shall comply with the requirements for walkways, bicycle paths and roadways outlined in the respective Area Data Sheets. Exterior: Fields: Recreation shall have direct vehicular access by paved road to campus road system.
- (b) Sports surface shall be designed and installed with appropriate drainage, soil profile and grass species to provide a uniform

playing surface suitable for all weather and season play across the range of anticipated sports. The field shall also be suitable for use for public gatherings.

- (c) Traffic load: suitable for planned vehicle loading. Paving, sod or turf, and playing surfaces shall support delivery truck and ambulance access for all areas. Pavement design shall take turning and drive-off loading into account to prevent rutting and buckling of surfaces.

3.7.14.3 Playing Surface Installation

- (a) Preparation of subgrade: the site shall be graded, using laser grading methods, to subgrade elevation with suitable materials. Subgrade shall be compacted to 95% maximum dry density using standard proctor method. Proof rolling shall be performed over entire area. Unsuitable areas shall be removed and replaced. Certified survey shall be performed. Elevations shall not deviate by more than 1/2" in any 25-foot direction.
- (b) Preparation of root zone material: install rootzone material in a single lift using laser grading method for elevation control. Certified survey shall be performed. Elevations shall not deviate by more than 1/2" in any 25' direction. Water dry root zone to depth of 4 inches at least 48 hours prior to sodding to obtain a loose friable planting bed.
- (c) Sodding new turf areas:
 - (i) Install new sod during normal sod installation time of year. Do not install during dormant season;
 - (ii) Grass installation: areas to receive sod shall be firm, smooth and the irrigation and drainage system shall be operational. Lay sod within 24 hours from time of harvesting/stripping.
 - (1) Laying sod: form a solid mass with tightly fitted joint, do not overlap. If plastic mesh was used to help harvest big roll sod, this material should be removed and discarded from site.
 - (2) Patches: shall be a minimum size of 24 inches in length and width to match that of the roll.
 - (3) Filling joints: after laying and rolling of sod, fill joints and seams with approved rootzone mixture. Broom or sweep excess material to avoid smothering grass.

- (4) Top dress sodded field: one lift of 1/8 to 1/4 inch may be required using the same rootzone mix as specified previously.
- (5) Rolling of turf: initial rolling of the turf after sod installation shall be performed using the lightest weight equipment as practical.
- (6) Irrigation of grass: begin irrigation as sod is completed in any one section and water thoroughly.

3.7.14.4 Courts Area

Sports and recreation areas for the following functions:

- (a) Tennis – three (3) courts (grouped together); and
- (b) Basketball, outdoor – four (4) courts (grouped together).

3.7.14.4.1 Play surface shall be installed to NCAA Division II standards, where appropriate, otherwise to community or high school standards, including:

- (a) Overall grade difference no greater than one (1) inch between any two points on the play surface;
- (b) No grade change or unevenness greater than one (1) inch in any eight (8) feet;
- (c) Drainage adequate to handle ten (10)-year, twenty-four (24)-hour rainfall event without ponding; and
- (d) Drainage adequate to handle a twenty-five (25)-year storm event without flooding.

3.7.14.4.2 Tennis courts shall also be designed to comply with International Tennis Federation (ITF) requirements. Where there is a conflict between ITF and NCAA standards, the more stringent shall apply.

3.7.14.4.3 Intentionally deleted.

3.7.14.4.4 Intentionally deleted.

3.7.14.4.5 All courts shall be orientated according to NCAA Division II requirements as appropriate. In the absence of defined requirements courts shall be orientated North/South. Court and surrounding area sizes shall be in accordance with NCAA Division II requirements. Basketball court sizes shall use NCAA indoor court dimensions.

3.7.14.4.6 Tennis and basketball courts may be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements, provided

access to buildings or other facilities required to be functional is not compromised, and there is no damage to fabric or utilities.

3.7.14.4.7 Surrounding areas (spectator, equipment and player areas) shall be planned and laid out to facilitate anticipated usage patterns. Spectator capacity will be less than one hundred (100), standing.

3.7.14.4.8 Courts and designed sports spaces may be distributed or grouped. If distributed, each discrete group of courts and designed sports spaces shall be treated as a separate venue.

3.7.14.4.9 The tennis courts shall be individually fenced to prevent cross interference. Tennis courts and basketball courts shall have perimeter fencing for security off hours. Entry and exit points shall be designed meet code pedestrian flows, with a minimum of two (2) gates per venue, one of which, closest to main anticipated access flow will be key card operated. Vehicular access shall be adequate for maintenance vehicles and ambulances.

3.7.14.4.10 Bleachers are not required.

3.7.14.4.11 Intentionally deleted.

3.7.14.4.12 Materials & Performance

Sports surface: Tennis court surface shall be NCAA Division II compliant hard court surface. Hard surface shall be acrylic/polyurethane colored surface over concrete or asphalt substrate, designed for medium fast to fast court rating as determined by the International Tennis Federation (ITF) court pace classification system. Basketball courts shall be hard paving acrylic/polyurethane colored surface over concrete or asphalt substrate. Striping for tennis courts and basketball courts shall be included.

3.7.14.4.13 Courts and designed sports spaces shall have direct vehicular access by paved road to campus road system.

3.7.14.4.14 Spectator areas shall be a mix of natural grass and paved surfaces. Paved surfaces shall comply with the requirements for walkways, bicycle paths and roadways outlined in the respective Area Data Sheets.

3.7.14.4.15 Traffic load: suitable for planned vehicle loading. Paving, sod or turf, and playing surfaces shall support delivery truck and ambulance access for all areas. Pavement design shall take turning and drive-off loading into account to prevent rutting and buckling of surfaces.

3.7.14.4.16 Provide open chain link fencing around courts and designed sports spaces. Landscaping shall be provided at perimeters. Landscaping shall be designed to allow good visibility for personal security and eliminate areas of concealment.

3.7.14.4.17 Lighting for spectator areas, including the bleachers, and field housekeeping is not required. Developer shall provide lighting Infrastructure consisting of empty conduit of adequate size from an acceptable electrical room to each court

area, and switchgear/panelboard capacity to support future lighting installation. Switchgear/panelboard capacity shall include bus capacity and space for future breakers. Conduit shall be terminated at courts in a clearly marked pullbox.

3.7.14.4.18 Sports lighting is not required. Developer shall provide lighting infrastructure consisting of empty conduit of adequate size from an acceptable electrical room to each court area, and switchgear/panelboard capacity to support future lighting installation. Switchgear/panelboard capacity shall include bus capacity and space for future breakers. Conduit shall be terminated at courts in a clearly marked pullbox.

3.7.14.5 Pool: Competition

3.7.14.5.1 Nonassignable Spaces: Exterior: Pool: Competition Area consists of a competition pool, and surrounding spaces, supporting Infrastructure and bleachers. A diving pool is not included as part of the Project. The Pool: Competition Area shall be constructed adjacent to the Student Life: Athletics: Aquatic Center Areas.

3.7.14.5.2 Pool: Competition Area and surrounding Areas shall be installed to NCAA Division II standards. The Pool: Competition Area dimensions shall provide for a racing area no less than fifty (50) meters by twenty-five (25) yards, with additional length and width to accommodate automated touch pads. Minimum depth is seven (7) feet throughout. Dimensional tolerances, walls, decks, gutters, etc., shall meet NCAA Division II standards.

3.7.14.5.3 Nonassignable Spaces: Exterior Pool: Competition Area shall be marked for eight (8) lanes, nine (9) feet wide. All lane and other markings shall be permanently installed and shall comply with NCAA standards and recommendations. Exterior Pool: Competition walls shall include recessed lane line anchors and fastening system for electronic timing pads, together with any supporting infrastructure, including conduit or power as required. Pads and lane lines are Owner provided.

3.7.14.5.4 Pool shall be orientated according to NCAA Division II requirements as appropriate. In the absence of defined requirements pool shall be orientated North/South. Nonassignable Spaces: Exterior Pool: Competition Area surrounding size shall be in accordance with NCAA Division II requirements, with minimum side decks of ten (10) feet and end decks of fifteen (15) feet. End decks shall include anchoring system for starting blocks. Side decks shall incorporate permanent provision to anchor backstroke flag lines in accordance with NCAA standards.

3.7.14.5.5 Public address system: Developer shall design and install conduit infrastructure for a future public address system designed to be heard clearly in all areas of the Facility, including locations for mixer rack and amplifier, distribution wiring and speakers. All exposed elements shall be weather proof. Public address system, including input devices, mixer rack, amplifiers, cabling and speakers will be provided by Owner. Input location shall be coordinated with the overall design and with Owner.

3.7.14.5.6 Starter PA system: Developer shall design and install conduit infrastructure for a future starter PA system separate from the general public address system. Starter PA system shall be designed specifically to provide clear and simultaneous instructions

at each of the starting platforms. Starter PA system, including input devices, mixer rack, amplifiers, cabling and speakers will be provided by Owner.

3.7.14.5.7 Spectator areas shall be planned and laid out to facilitate anticipated usage patterns, for an anticipated maximum spectator volume of one thousand (1,000). Spectator areas shall be designed to support paid attendance at events, including fencing at the perimeter with appropriate controlled entry and exit points, and vehicular access. Entry points shall be limited to a maximum of two (2) controlled entries. Exiting shall be designed meet code pedestrian flows. Vehicular access shall be adequate for maintenance vehicles and ambulances.

3.7.14.5.8 Spectator area shall be graded for placement of moveable bleachers for events. Graded area shall be adequate for bleacher placement and movement to allow bleachers to be relocated to other venues on the campus, or for storage. Fences and gates shall be designed to facilitate bleacher relocation.

3.7.14.5.9 Developer shall provide exterior grade, aluminum, moveable bleacher system with seating for 500. Bleacher seating shall be fully code and ADA compliant. Bleachers shall be five (5) to ten (10) row assemblies. The first row walkway may be at grade. Bleachers shall include all necessary steps, railings, ramps, etc. Bleachers shall be placed parallel to pool side. Aluminum seating surfaces are acceptable. Bleacher locations shall be coordinated with team and officials bench areas to provide adequate space for both functions. Except for the moveable bleacher system to be provided by Developer, the Owner will provide furnishings for the Pool: Competition Area. Developer shall provide all necessary anchorages and Infrastructure, including power and data connections and communication conduits, to accommodate the installation of the following furnishings:

- (a) 4 lifeguard chairs;
- (b) 8 floating water polo goals;
- (c) 16 lane lines, competitive;
- (d) 2 lane lines, polo;
- (e) 3 lane lines, storage reel;
- (f) 3 lane lines, storage reel covers;
- (g) 2 pace clocks;
- (h) 1 scoreboard, pool;
- (i) 16 starting blocks, removable, competitive;
- (j) 1 swimming starting system;
- (k) 1 swimming timing system; and
- (l) 2 touchpad carts.

3.7.14.5.10 Team bench area shall include adequate space for teams, including coaches, team support staff and equipment.

3.7.14.5.11 Public restrooms: For spectator facilities identified in the Student Life: Athletics: Aquatic Center Area Data Sheets, provide twelve (12) WCs and six (6) lavatories for women and three (3) WC, three (3) urinals and six (6) lavatories for men.

3.7.14.5.12 Vehicular Access and drop off areas: Bus and POV drop off zones shall be provided at the entrance to the Athletics: Student Life: Aquatic Center. Service vehicle access shall be provided to the buildings within the area, and to allow for emergency vehicle service. Parking for up to 200 POV stalls shall be located within a five (5) minute walk from the Facility.

3.7.14.5.13 Pool Competition and surround spaces may not be used for stormwater management and overland flow in the one hundred (100)-year, twenty-four (24)-hour storm as contemplated in Section 3.5.6.1 (Stormwater) of the Technical Requirements.

3.7.14.6 Materials & Performance

3.7.14.6.1 Pool deck shall be hard paved surface, with three (3) year aged solar reflectance index no less than 0.4, asphalt paving shall not be used for deck. Deck shall have high static and dynamic wet slip resistance.

3.7.14.6.2 Pools shall have direct vehicular access by paved road to campus road system.

3.7.14.6.3 Traffic load: suitable for planned vehicle loading. Deck shall not have vehicular access. Surrounding paved or landscaped areas shall support delivery truck and ambulance access for all areas. Pavement design shall take turning and drive-off loading into account to prevent rutting and buckling of surfaces.

3.7.14.6.4 Landscaping: Provide open chain link fencing around pool. Landscaping shall be provided at perimeters. Landscaping shall be designed to allow good visibility for personal security and eliminate areas of concealment.

3.7.14.6.5 Lighting levels for spectator areas, including the bleachers, and field housekeeping shall be a minimum of 2.0 FC when the space is in use. Lighting is not required when the Facility is not in use.

3.7.14.6.6 Sports lighting shall be provided to provide uniformly distributed lighting at 70 FC with a maximum to minimum uniformity ratio of 1.5:1 or better. Lighting systems shall be capable of being upgraded in the future by the Owner to 100 FC. Lighting shall be placed to avoid glare for swimmers or spectators and any neighboring facilities.

3.7.15 Specific Food Service and Dining Area Requirements

Developer shall design and construct and fully equip the Student Life: Central Dining Area, and those Area Types identified as Kitchen: Serving/Prep or Concession, to meet the requirements set forth in the Contract Documents.

3.7.15.1 Food Service Design Professional

3.7.15.1.1 For the performance of the Design Work specifically related to the Student Life: Central Dining Area, and those Area Types identified as Kitchen: Serving/Prep, Developer shall engage the services of a food service design professional having architectural and technical backgrounds and in-depth expertise with the design of dining spaces and food services (the "**Food Service Design Professional**").

3.7.15.1.2 At a minimum, the Food Service Design Professional shall:

- (a) be a person or entity that specializes in the design of institutional dining spaces, including distribution of space, equipment, required Facility Systems and supporting Infrastructure, and food services;
- (b) have a minimum of ten (10) years of experience (lead designer); and
- (c) have experience in the following areas:
 - (i) written food service and dining equipment specifications;
 - (ii) integration of food services, spaces and equipment with the overall planning of the Project;
 - (iii) operational analysis of food services and spaces;
 - (iv) dining space programming and planning;
 - (v) construction inspection or management of dining spaces;
 - (vi) commercial kitchen design and details; and
 - (vii) sustainability design and planning.

Developer shall ensure that the Food Service Design Professional takes the lead role in the programming, planning and design of Student Life: Central Dining Area, Student Life: Student Activity: Conference Center, Kitchen: Serving/Prep – Large Area, Academic: Office: Academic Leadership Office: Kitchen: Serving/Prep – Small Area and Student Life: Athletics: Fields: Concessions Area, and that such person serves as the inspector during the performance of the Construction Work for the Central Dining Area.

3.7.15.2 Food Service Equipment and FF&E

3.7.15.2.1 Developer shall design and construct the Student Life: Central Dining Area, and those Area Types identified as Kitchen: Serving/Prep, to accommodate food service equipment in the categories identified in Section 3.7.15.2.2 and the FF&E specified in Appendix 7 (FF&E Packages) of the Technical Requirements. Developer shall procure and install all food service equipment necessary to meet the requirements set forth in this Section 3.7.15.

3.7.15.2.2 Equipment shall include, without limitation:

- (a) built in or fabricated food storage coolers or freezers;
- (b) shelving racks and storage cabinets;
- (c) countertops and cabinets, including any shelving, cupboards, drawer units, and integrated sinks or other plumbing fixtures;
- (d) mobile work tables;
- (e) cooking and food preparation equipment, including any hoods, exhaust, fire suppression systems, etc.;
- (f) specialty racks for ingredients, knives, dunnage, etc.;
- (g) ice makers and storage;
- (h) complete soiled dishware/cookware systems, including tray/dirty return handling, waste management, and dishwashing systems;
- (i) food service counters, gondolas, shelving and display cabinets, including heating and chilled displays.
- (j) all built-in graphics and theming elements, and any necessary tray racks and sneeze guards;
- (k) drink dispensers (hot and cold), and self-serve counters/dispensers for other foods or condiments;
- (l) 'grab and go' display shelving and display cabinets;
- (m) cashier positions including tray rails and display positions;
- (n) queue management rails, stanchions; and
- (o) built in banquette seating and any fixed tables.

3.7.15.3 Central Dining Area

Developer shall design, construct and fully equip the Student Life: Central Dining Area in accordance with the following requirements:

- (a) Dining Program:
 - (i) Student Life: Central Dining Area shall be centrally located and not distributed around the Project Site;
 - (ii) Developer shall provide all equipment necessary to ensure that the Student Life: Central Dining Area has the capacity to accommodate the delivery of five thousand plus (5,000+)

meals per day with a peak serving capacity of five hundred and fifty (550) meals/hour in accordance with the requirements of this Section 3.7.15 of the Technical Requirements;

- (iii) The average seating duration shall be thirty-five (35) minutes;
 - (iv) Food preparation, display and service shall be a hybrid of platform style and cafeteria style, with food preparation prior to service occurring in the back of house kitchen and with cooking and serving occurring at the platforms. Platforms shall be equipped for cooking and food services, including hoods as required;
 - (v) Student Life: Central Dining Area shall include: general seating areas to accommodate a minimum of six hundred (600) seats; a separate enclosed dining room to accommodate a minimum of seventy five (75) seats; a separate enclosed dining room to accommodate twenty (20) seats; and outdoor dining to accommodate a minimum of one hundred (100) seats;
 - (vi) The seventy-five (75) seat and twenty (20) seat enclosed dining areas shall be separate from the general seating area;
 - (vii) Outdoor seating shall be an open area enclosed only by means of a fence and shading structure that shall also provide some protection from weather elements;
 - (viii) Student Life: Central Dining Area shall contain restrooms dedicated to Users;
 - (ix) The back of the house area shall contain restrooms dedicated to kitchen staff;
 - (x) The back of the house area shall contain a locker room dedicated to kitchen staff with adequate for lockers;
 - (xi) The back of the house area shall contain a break room adjacent to locker room; and
 - (xii) All service access shall be in the back of the house area.
- (b) Front of the house performance requirements:
- (i) The general seating area shall be designed to provide User interaction with cashiers at point of entry;

- (ii) Developer shall consider an open floor plan with a seamless transition from the service area to seating;
 - (iii) The general seating area shall be designed with gates or doors to close off sections to allow for limited service. The limited service area of the general seating area shall contain a comfortable level of seating and be placed adjacent to the enclosed outdoor seating;
 - (iv) The general seating area design shall allow customers to view production and assembly of meal options, also known as, "platform dining". The platforms will stream from one to another and will be serviced by the equipment at each platform and the production kitchen directly adjacent to the platforms. A salad bar and exhibition cooking station will be featured in the middle of the service area;
 - (v) Student Life: Central Dining Area shall include a bank of coolers to accommodate fresh "grab and go" items offered twenty-four (24) hours a day;
 - (vi) Student Life: Central Dining Area shall be a trayless facility;
 - (vii) Student Life: Central Dining Area shall include a minimum of six (6) food preparation platforms that can easily be adapted to new and emerging food trends over time;
 - (viii) The late night service area shall accommodate both meal plan and cash/credit (retail) sales;
 - (ix) Student Life: Central Dining Area shall have POS locations at customer points of entry for the main dining area. POS locations shall be free-standing register stations, with built-in cabinetry. Cabinetry shall be designed for seated POS operator; and
 - (x) Grab & Go shall have POS at check out position. POS locations shall be free-standing register stations. Cabinetry shall be designed for standing POS operator.
- (c) Requirements for payment at peak times:
- (i) Student Life: Central Dining Area shall be designed to allow for swiping of meal cards at point of entry; and
 - (ii) Student Life: Central Dining Area shall be designed to discourage Users from taking food out of the Central Dining Area.

- (d) Requirements for payment at off-peak times:
 - (i) The off-peak sub-areas of Student Life: Central Dining Area shall allow access to Users twenty-four (24) hours a day and allow Users to take purchased items out of the off-peak sub-areas of the dining facility;
 - (ii) Pay stations shall have the ability to be converted to offer the option of paying a-la-carte; and
 - (iii) The design of the off-peak sub-areas shall allow swiping of meal card at exit.
- (e) Enclosed dining room (75 seat and 20 seat) requirements:
 - (i) The enclosed dining rooms shall be designed to accommodate private functions with table or buffet service;
 - (ii) Primary entrances to the enclosed dining rooms shall be distinct from the general seating area and shall not require Users to pass through the general seating area to access the enclosed dining room. Primary entrances shall be from Student Life: Central Dining Area lobby or direct to the exterior. If direct to the exterior, the entrance shall be on the same façade as the main Central Dining Area entrance;
 - (iii) Enclosed dining rooms shall have indoor access to restrooms, general seating areas and other Student Life: Central Dining Area amenities, and shall have direct indoor access to back of house for food service and bussing; and
 - (iv) The seventy five seat enclosed dining room shall be constructed with finishes equal to or better than the Student Life: Student Activity: Conference Center: Ballroom Area (Area Data Sheet AS07).
- (f) Back of the house requirements:
 - (i) Refrigeration systems and freezers shall have their own compressors;
 - (ii) The back of the house shall contain a centralized production zone;
 - (iii) The back of the house shall contain a separate production zone for the catering supplier, which can be separated by walls or equipment placement; and
 - (iv) The back-of house area shall include a walk-up take-out window for food service.

- (g) Dish room requirements:
 - (i) The dish room shall be located in the back of the house;
 - (ii) The dish room shall have a three (3) compartment sink for pot washing;
 - (iii) A privacy wall shall be placed between dish return feature and dining room;
 - (iv) The privacy wall shall have compost, recycle and trash bins across from the dish return feature; and
 - (v) The dish room shall have space and utility hook-ups for trash and recycling compactors, cardboard bailers and electric carts.
- (h) Office space requirements:
 - (i) The back of the house sub-area shall include a production office with space for three (3) desks and three (3) file cabinets;
 - (ii) The back of the house sub-area shall include a manager's office with space for three (3) desks and three (3) file cabinets; and
 - (iii) The back of the house sub-area shall contain an additional office with space for two (2) desks and two (2) filing cabinets.
- (i) Additional requirements:
 - (i) Student Life: Central Dining Area shall include a two-bay properly graded dock capable for handling a sixty (60)-foot tractor trailer;
 - (ii) Developer shall consider a flush dock;
 - (iii) Range fire protection system gas resets shall be easily accessible and shall not be located in the ceiling;
 - (iv) Drains in waste management sanitary zone shall be plumbed to sanitary sewer;
 - (v) Developer shall consider placing electrical runs through the ceiling instead of under slab; and
 - (vi) Cat 6A cabling to POS locations and WAP coverage to the balance of the Student Life: Central Dining Area.

3.7.15.4 Conference Center: Kitchen: Serving/Prep Area - Large Area

Developer shall design, construct and fully equip Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep - Large Area in accordance with the following requirements:

- (a) Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep – Large Area shall be located adjacent to the Student Life: Student Activity: Conference Center: Ballroom Area;
- (b) Developer shall provide all equipment necessary to ensure that the Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep – Large Area has the capacity to accommodate the delivery of 200 full meals or 800 buffet/sandwich meals per event per meal time and to support breakfast, drinks and snack food service;
- (c) If food service is sourced from Student Life: Central Dining Area and plated at the Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep – Large Area, Central Dining Area shall include capacity for Conference Center preparation demand, and Kitchen Serving/Prep – Large Area shall include all equipment required to keep food safe and at serving temperature, or to allow for warming or cold storage; and
- (d) Developer shall provide all equipment necessary to ensure that the Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep – Large Area has the capacity to accommodate high quality reusable dinnerware and serving dishes, including storage, handling, dishwashing, etc.

3.7.15.5 Academic: Office: Academic Leadership Office: Kitchen: Serving/Prep – Small Area

Developer shall design, construct and fully equip Academic: Office: Academic Leadership Office: Kitchen: Serving/Prep – Small Area to conform to the following requirements:

- (a) Kitchen: Serving/Prep – Small Area shall be located in the Academic: Office: Academic Leadership Office Area;
- (b) Developer shall provide all equipment necessary to ensure that the Kitchen Serving/Prep – Small Area has the capacity to accommodate the delivery of 80 full meals or 120 buffet/sandwich meals per event per meal time and to support breakfast, drinks and snack food service;
- (c) If food service is sourced from Student Life: Central Dining Area and plated at the Kitchen Serving/Prep – Small Area, Central Dining Area shall include capacity for Conference Center

preparation demand, and Kitchen Serving/Prep – Small Area shall include all equipment required to keep food safe and at serving temperature, or to allow for warming or cold storage; and

- (d) Developer shall provide all equipment necessary to ensure that the Kitchen Serving/Prep – Small Area has the capacity to accommodate all high quality reusable dinnerware and serving dishes, including storage, handling and dishwashing.

3.7.15.6 Intentionally deleted.

3.7.16 Specific Wellness Center and Athletics Requirements

3.7.16.1 Adjacency Requirements

- (a) All Areas included in Student Life: Wellness Center, Student Life: Athletics: Aquatic Center and Student Life: Athletics: Fields shall be collocated within the same Building or in close proximity.
- (b) Developer may provide a single main entrance and lobby for the Building accommodating the Student Life: Wellness Center and Student Life: Athletics Areas.
- (c) The Owner will allow, in its discretion, minor deviations from adjacency, daylighting and specific area ASF requirements to facilitate the accommodation of Student Life: Wellness Center and Student Life: Athletics Areas in one Building, provided that the total ASF for Student Life: Wellness Center and Student Life: Athletics Areas is provided, and functionality of the Program is maintained in all Areas. These minor deviations will be determined during the design review process.
- (d) The Student Life: Athletics: Aquatic CenterPool: Pump/Filtration Room Area may be accommodated separate from other Facilities in unconditioned and unoccupied space that meets the requirements applicable to Non-Assignable Spaces: Interior: Utility Structure Areas.

3.7.16.2 Security and Layering

- (a) The Student Life: Wellness Center shall be designed in accordance with the following requirements to provide an open and accessible public façade while maintaining high levels of security and privacy for Wellness operations:
 - (i) Main public entrance shall be on main campus pedestrian circulation corridors or campus core areas. Entry lobby shall have readily identified entrance. Lobby interior shall not be directly visible from outside to provide privacy for patients.

- (ii) Secure areas within Student Life: Wellness Center Areas shall be separated from the public areas by keycard access. Secured areas shall be located together such that access from one secured area to any other will not require passing through a public area.
- (iii) Building and secure parking perimeter shall be protected at all points from vehicle impact using a minimum K8 rating, as set forth in the Department of State SD-STD-02.01 *Certification Standard: Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates, Revision A*, March 2003. Protection may be by adjacent structures, landscape features or bollards.

3.7.16.3 Privacy

- (a) In addition to the privacy requirements of HIPAA, Developer shall design the space to provide high levels of privacy and confidentiality.
- (b) Provide separate exits and waiting areas for graduate students and undergraduate students in the Student Life: Wellness Center: Counseling Area. Ensure that there is no through view between separate waiting areas to maintain confidentiality.
- (c) In patient, treatment and counselling rooms (Student Life: Wellness Center: Counseling: Office 02: Counseling (CAPS) Areas), ensure occupants of rooms cannot be identifiable from outside the room.

3.7.16.4 Safety

- (a) Shouting in any patient, treatment or counseling room (Student Life: Wellness Center: Counseling: Office 02: Counseling (CAPS) Areas) shall be audible from outside the room, while maintaining acoustical performance identified in the applicable Area Data Sheets.
- (b) Provide separate counseling rooms (Student Life: Wellness Center: Counseling: Office 02: Counseling (CAPS)) for graduate and undergraduate students.

3.7.16.5 Patient Wellbeing & Infection Control

- (a) Design the Student Life: Wellness Center using best practice in patient well-being and infection control, including:
 - (i) Provide comfortable and attractive settings based on evidence based design for healing environments;

- (ii) Provide comfortable and acoustically designed space when students need to work with an assistant or need voice recognition software to "read" their exams;
- (iii) Ensure air flow is managed in such a manner to minimize risk of cross-contamination and nosocomial infection;
- (iv) Provide separated well and sick patient waiting areas with separated air systems. Design to manage patient flow to avoid contamination; and
- (v) Provide handwashing and hand sanitization stations throughout the facility.

3.7.16.6 Nurse Call System

- (a) Design and install a complete nurse call system within the Student Life: Wellness Center, including initiation and reporting devices.
- (b) Provide addressable call buttons in all treatment rooms and on the outside of each room within the Student Life: Wellness Center.
- (c) Provide reporting devices at a minimum at the nurse station and the main reception area.
- (d) Provide corridor zone lights in main nurse area.
- (e) The basis of design shall be VisionLink Wireless Nurse Call System, or a product of equal or better quality and specifications. The system shall support reporting to medical staff mobile devices. Any mobile devices shall be provided by owner.

3.7.16.7 Pharmacy

- (a) Pharmacy shall be located to provide public access.
- (b) Pharmacy shall be designed to meet HIPAA confidentiality requirements.

3.7.16.8 Operations and Efficiency

- (a) Conference rooms and similar space shall be shared between users.
- (b) Design the facility to optimize patient flow and efficiency of operations.

3.7.17 Specific Student Life: Academic Leadership Office and Enrollment Center Requirements

3.7.17.1 Adjacency Requirements

3.7.17.1.1 All uses included in those Areas designated as Academic Office: Academic Leadership Office and Student Life: Enrollment Center shall be collocated within the same Facility or in close proximity.

3.7.17.1.2 The Area designated as Student Life: Enrollment Center: Student Business Services: Cashier Room shall be located near a loading zone and have an access control vestibule so that the exterior door closes before the interior door opens and vice versa. Such doors shall have large peep holes. The Student Life: Enrollment Center: Student Business Services: Cashier Room shall have a secure exterior deposit box for after-hour cash and checks drop offs in a location accessible twenty-four (24) hours a day, seven (7) days a week.

3.7.17.1.3 Financial Aid shall be a self-contained suite. Huddle rooms shall be located near the entrance of Financial Aid and shall be shared with the rest of the Enrollment Center.

3.7.17.1.4 The Owner will, in its discretion allow minor deviations from the adjacency requirements, daylighting requirements and specific ASF requirements to facilitate an efficient layout of Academic Office: Academic Leadership Office and Student Life: Enrollment Center Areas, provided that the total required ASF for these Areas as specified in the Program is delivered and Program functionality is maintained in all Areas.

3.7.17.2 Admissions

The Student Life: Enrollment Center: Admissions Area shall be easy to find and easy to access. There shall be visitor parking in close proximity. The acoustics within the Student Life: Enrollment Center: Admissions Areas shall protect the privacy of interviews and conversations.

3.7.17.3 Student Business Services

The Student Life: Enrollment Center: Student Business Services Areas shall be located next to but not in the Student Life: Enrollment Center: Students First Area.

3.7.17.4 Student Life: Enrollment Center: Student First Area

3.7.17.4.1 Confidentiality

Users' confidential academic records and financial information must be protected. Private space must be available for confidential conversations about academic and financial matters.

3.7.18 Specific Student Life: Early Childhood Area Requirements

3.7.18.1 Specific Construction Requirements

- (a) Developer shall review and analyze the Existing ECEC Building and shall design and construct a 3060 ASF addition to the Existing ECEC Building to accommodate the Student Life: Early Childhood Areas (the “**ECEC Addition**”), and shall design and construct the Nonassignable Spaces: Exterior: Early Childhood Outdoor Play Area, adjacent to the Existing ECEC Building and the ECEC Addition.
- (b) Developer shall ensure that the ECEC complex (comprised of the Existing ECEC Building, the ECEC Addition and the Early Childhood Outdoor Play Area) is fully compliant with child care center licensing requirements under California Administrative Code Title 22 Division 12. In addition, the facility shall support the academic and research functions of UC Merced by providing research and observation capability.
- (c) The Owner will obtain the child care center license. Developer shall identify to the Owner any child care center licensing deficiencies relating to the Existing ECEC Building. The Owner is responsible for resolving licensing deficiencies relating to the Existing ECEC Building.
- (d) Developer shall design and construct the ECEC Addition to:
 - (i) meet the specifications set forth in the record drawings for the Existing ECEC Building;
 - (ii) be of equal or better quality than the Existing ECEC Building, including in respect of structural components, Facilities Systems and interior finishes;
 - (iii) have a design life of not less than 35 years; and
 - (iv) tie into existing Utilities.
- (e) Developer shall design and construct the Early Childhood Outdoor Play Area to be of equal or better quality than the existing play area located at the Existing ECEC Building, including in respect of structural components, Facilities Systems and finishes, and to tie into existing Utilities.
- (f) Sections 4 and 5 of the Technical Requirements do not apply to the Existing ECEC Building.

3.7.18.2 Adjacency Requirements

3.7.18.2.1 Program Adjacency

- (a) The Nonassignable Spaces: Exterior: Early Childhood Outdoor Play Area shall be adjacent to the Existing ECEC Building and the ECEC Addition and shall be designed and constructed to incorporate the existing play area located at the Existing ECEC Building.
- (b) Developer may design and construct the ECEC Addition as a building independent from the Existing ECEC Building provided that a shaded walkway consistent with the shade structure at the Existing ECEC Building is provided between the two buildings
- (c) Child areas shall be laid out to allow for maximum visibility of the children in the classrooms, play areas, restrooms and outside play area, and to provide for all required child monitoring and protection,
- (d) Any storage room within the Student Life: Early Childhood Area shall be located near the reception.

3.7.18.3 Security and Layering

3.7.18.3.1 The Student Life: Early Childhood Area shall be designed to provide an open and accessible public façade while maintaining security for children. Specifically design elements shall include:

- (a) Public entrances shall be on main campus pedestrian circulation corridors. Any main public entrance and lobby area shall have high visibility and visual transparency with storefront or similar glazing;
- (b) Secure areas within Student Life: Early Childhood Area shall be separated from the public areas by keycard access. Secured areas shall be located together such that access from one secured area to any other will not require passing through a public area; and
- (c) Building and secure parking perimeter shall be protected at all points from vehicle impact using a minimum K8 rating, as set forth in the Department of State SD-STD-02.01 *Certification Standard: Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates, Revision A*, March 2003. Protection may be by adjacent structures, landscape features or bollards.

3.7.18.4 Student Life: Early Childhood Outdoor Play Area

Developer shall design and construct an outdoor play area adjacent to the Student Life: Early Childhood Area in accordance with Area Data Sheet EX-33 and the following requirements:

- (a) Early Childhood Outdoor Play Area shall be fully compliant with all licensing requirements for child center play areas;
- (b) Early Childhood Outdoor Play Area shall include a mixture of landscaped, paved and play surfaces, and shall include shade structures for outdoor activity areas. Paved and play surfaces shall be high albedo or fully shaded to ensure surface temperatures never exceed 100 degrees Fahrenheit;
- (c) Early Childhood Outdoor Play Area shall include outdoor dining facilities, play structures and fixed play equipment suitable for the number and age of the children. Play surfaces under play structures and equipment shall be resilient play surface designed for use in play areas, and suitable for fall hazard. Play equipment shall be shaded or otherwise protected to ensure surface temperatures do not exceed 100 degrees Fahrenheit;
- (d) Early Childhood Outdoor Play Area shall be divided into zones for age division of children;
- (e) Early Childhood Outdoor Play Area shall have architectural quality (wrought iron or wood) security fencing around perimeter. Fencing shall be a minimum of 6' high, and all areas within any one zone shall be able to be monitored from a single point of observation;
- (f) Early Childhood Outdoor Play Area shall have immediate access to child restrooms without the need to pass through other Student Life: Early Childhood Area spaces; and
- (g) Early Childhood Outdoor Play Area shall be selected to eliminate toxic, allergenic, thorny, bee attractant or otherwise hazardous plants in areas accessible by children. Landscaping shall not provide visual obstruction or point of concealment.

3.7.19 Specific Student Life: Student Activity Area Requirements

3.7.19.1 Adjacency Requirements

Student Life: Student Activity Areas may be distributed throughout the project, except as noted:

- (a) Student Life: Student Activity: Conference Center Area. All spaces located in the Program Unit "Conference Center" shall be housed together and organized to function as a coordinated program with

common access to the Student Life: Student Activity: Conference Center Area Lobby, Student Life: Student Activity: Conference Center: Kitchen: Serving/Prep – Large Area, Restrooms, and other common areas.

- (b) Student Life: Student Activity: Clubs & Organizations Areas and Student Life: Student Activity: Administration Areas shall be housed together and organized to function as a coordinated program. Student Life: Student Activity: Support & Maintenance: Storage: General Areas shall be collocated with Clubs and Organizations.
- (c) Student Life: Student Activity: Social & Entertainment Areas shall be housed together and organized to function as a coordinated program.
- (d) Student Life: Student Activity: Support & Maintenance Areas shall be distributed to support Student Activity: Student Life Areas.

3.7.19.2 Student Life: Student Activity: Retail: Campus Store Area

3.7.19.2.1 Developer shall design and construct the Student Life: Student Activity: Retail: Campus Store Area to allow the space to be separated into two (2) separate two thousand (2000) SF as retail shells in the future. To facilitate this, each two thousand (2000) SF space shall include:

- (a) two (2) separate utility feeds for power, plumbing and HVAC service located in either divisible section;
- (b) a minimum of twenty (20) horizontal feet of floor-to-ceiling glazed retail frontage on primary circulation pathways;
- (c) ability to receive ventilation for commercial kitchen hood without major alterations;
- (d) an exhaust chase located in close proximity to such retail spaces; and
- (e) Separable service/loading areas.

3.7.19.2.2 Student Life: Student Activity: Retail: Campus Store Area shall have a minimum of one glazed, power operated door in the retail storefront. If more than one door is provided, the doors shall be located such that one is in each planned subdivided area.

3.7.19.3 Student Life: Student Activity: Conference Center

3.7.19.3.1 The spaces shall be laid out to allow the Conference Center to function as a unified operation with a single primary entrance to all spaces through the main lobby or internal corridors, to allow for controlled access to conference activities.

3.7.19.3.2 Vestibule areas serving as a User gathering point during an event to access the Student Life: Student Activity: Conference Center Area: The Area shall be adjacent to the Area designated as Student Life: Student Activity: Conference Center: Ballroom.

3.7.19.3.3 Student Life: Student Activity: Conference Center: Ballroom Area shall function as an emergency shelter for the campus. It shall be adjacent the shelter storage.

3.7.19.4 Student Life: Student Activity: Retail: Gallery

3.7.19.4.1 Student Life: Student Activity: Retail: Gallery Area shall be a 'white box' gallery suitable for art displays, including video and participation art. Retail: Gallery Area shall be designed to house rotating displays of non-archive quality art. Where archive quality exhibits requiring high levels of environmental control are to be displayed, they shall be in Owner provided and managed environmentally controlled cabinets or vitrines.

3.7.19.4.2 Student Life: Student Activity: Retail: Gallery Area shall be designed to be readily reconfigured to suit changing displays, including installation of temporary partitions within a single conditioned zone. To support reconfiguration the space shall include the following:

- (a) Display loading: the floor shall have a loading capacity of 300 psf; permanent walls shall have the capacity to support 200 pounds point load and 500 pounds over any four (4) feet; ceiling or structure above shall have unistrut or similar grid framing at maximum 4 feet on center, with the ability to support 500 pounds at any point and 1000 pounds in any four (4) feet by four (4) feet bay. Ceiling grid shall be laterally braced to the building structure for the full design load, and capable of providing lateral bracing to suspended art or display partitions;
- (b) Display attachment: the floor, wall and ceiling/grid shall allow for easy attachment of displays, and patching of finishes following removal. The floor shall be wood block or similar material that can provide user installed anchors capable of withstanding a 1,000 pounds load in any direction, and which can be plugged as needed following display removal. End grain block is acceptable, provided pull resistance can be provided. Permanent walls shall have fire resistant plywood underlayment, minimum 5/8 inch. Fire resistance shall not use any chemicals that could be hazardous to displayed art. Ceiling, if installed, shall allow access to the support grid. The support grid shall be a manufactured system that allows user installed brackets or anchors from the same system; and
- (c) Power and lighting adaptability: Provide quad flush floor outlets at eight (8) feet on center. Provide quad ceiling/grid outlets at eight (8) feet on center. Each ceiling quad outlet shall be on an

independent circuit. Provide track lighting systems. For the first set, provide track at eight (8) feet on center along the long axis of the room. Each track shall support four (4) switched circuits capable of providing the full lighting level noted in the applicable Area Data Sheets. Individual light fixtures shall be owner supplied and installed with the first display set. Provide housekeeping lighting independent of the track lights to provide Lighting level L5.

3.7.20 **Intentionally deleted.**

3.7.21 **Intentionally deleted.**

3.8 **FACILITIES SYSTEMS**

Developer shall design and construct the Facilities Systems in accordance with the requirements of this Section 3.8 and, in respect of each Area within the Buildings, the requirements of applicable Area Data Sheets.

3.8.1 **Vertical Circulation Systems**

3.8.1.1 **General Requirements**

3.8.1.1.1 Developer shall prepare a vertical circulation study to determine the location and capacity of all vertical circulation systems within the Buildings.

3.8.1.1.2 All elevator and escalator systems shall be in conformance with the most recent version of ASME A17.1-2010, Safety Code for Elevators and Escalators, and CSA B44-10, Safety Code for Elevators.

3.8.1.2 **Staircases**

3.8.1.2.1 Staircases shall be designed and constructed to ensure good accessibility and safety.

3.8.1.2.2 Staircases shall have suitable handrails with a finish that matches that of the handrails utilized in staircases in the Existing Campus or the overall design of the applicable Building and shall incorporate non-skid products or surfaces to promote safety at all times.

3.8.1.3 **Stairwell: Fire Exit**

All Buildings shall have clearly marked fire and emergency exit stairwells.

3.8.1.4 **Elevator Systems**

- (a) The location, maximum capacity and average waiting time (AWT) of all elevators shall be determined in accordance with the vertical circulation study set forth in Section 3.8.1.1.1.

- (b) Hydraulic elevators shall be provided for a maximum rise of up to forty (40) feet. For a rise beyond forty (40) feet, traction elevators shall be provided.
- (c) Shunt trip for the main breaker shall be located outside of the elevator equipment room.
- (d) All microcomputer diagnostic devices and tools necessary for service of the microprocessor shall be non-proprietary.
- (e) All lanterns and push button fixtures shall be vandal resistant institutional design and 120 VAC PSB type and keyed switches shall be provided for fireman's service keyed to Adams WD01; fan/blower; independent service and top inspection. All keys shall integrate with campus keying system, best "A."
- (f) The minimum capacity for all elevators shall be three thousand five hundred (3,500) pounds.
- (g) The minimum speed for hydraulic elevators shall be 150 fpm, and 300 fpm for traction elevators with five (5) or more stops. Traction elevators with 4 or fewer stop shall have a minimum speed of 200 fpm. Dedicated service elevators shall have a minimum speed of 150 fpm.
- (h) The elevator door operation shall be seven (7) feet, zero (0) inches by three (3) feet, six (6) inches single side slide automatic.
- (i) For hydraulic elevators, neither the hydraulic pump nor motor shall be submersible.
- (j) Elevator buttons shall be labeled as follows:
 - (i) Numeric for all floors above the first floor;
 - (ii) 'G' for Ground Floor; and
 - (iii) 'B' for Basement (where applicable).
- (k) All hoist way entrances, doors front and back, and interior returns shall have a polished stainless steel, No. 8 finish; ceilings shall have a satin stainless steel, No. 4 finish; and the floor shall be compatible with anticipated use of the Areas that the elevators serve.
- (l) An interior laminate finish is preferred for elevators in Housing Areas.

- (m) The following items shall be included in all elevators:
 - (i) Exhaust fan; and
 - (ii) Card readers in each elevator to grant access to any and all levels as desired. Car calls to designated levels on tenant security shall not register without prior activation from coded card to enable activation of floor buttons. Ground floor car button shall remain active at all times. Feature shall be able to be overridden by independent or emergency service operation.
- (n) Key boxes shall not be permitted.
- (o) All elevators shall have a wireless card reader for layered security.
- (p) Elevator machine for traction elevators shall be manufacturer's standard variable voltage traction type hoisting machine, geared. Where variable-voltage is required, provide standard solid-state converters for use with elevator machine motors. Where an SCR drive is required for power control, include power filters to avoid pollution of power supply for data processing equipment or other electronic control systems.
- (q) Elevators shall be controlled by a non-proprietary elevator management system, and shall have open data access to allow for Owner elevator monitoring. Such non-proprietary elevator management system shall be capable of producing an elevator performance report detailing the performance and reliability of all elevators within the Building. Such elevator performance report shall be able to detail the individual unit performance compared to design and commissioning standards, including system availability, wait time, and feet per minute rates. Such elevator management system shall be integrated with the BMS.
- (r) All elevators shall conform to the following performance operational standards:
 - (i) The controller system shall provide smooth acceleration and deceleration with one-eighth (1/8) of an inch leveling accuracy at all landings, from no load to full rated load in the elevator, under normal or unloading conditions;
 - (ii) The speed of the elevator shall not vary plus or minus 3% under loading conditions;
 - (iii) Ride quality requirements shall include a horizontal acceleration measured inside of the cab during all conditions to not exceed 12 mg peak to peak within the 1 – 10 mHz range; and

- (iv) Vertical acceleration and deceleration shall be free of bumps, jerk and sway and shall be no more than 5 fps with initial ramp up of between 0.5 seconds and 0.75 seconds.
- (s) Overall elevator noise emissions shall be limited to the following maximum A-weighted sound pressure levels in any mode of operation:
 - (i) 80dBA measured three (3) feet from any piece of equipment in the machine room;
 - (ii) 50dBA measured five (5) feet above the cab floor near the center during all sequences of operation, exhaust air blower and annunciators; and
 - (iii) 45dBA measured in the elevator lobby, ten (10) feet from the elevator doors.
- (t) All elevators shall conform to the following AWT criteria for groups of three (3) or more during any sixty (60)-minute peak period:
 - (i) AWT shall be no more than twenty-five (25) seconds;
 - (ii) 70% of all calls shall be answered in under thirty (30) seconds; and
 - (iii) 95% of all calls shall be answered in under sixty (60) seconds.
- (u) Elevators with WAC, VVDC static drives and generator field control systems, the floor-to-floor time for typical 13'-6" floors or less:
 - (i) Geared machine: 7.0 seconds maximum; and
 - (ii) Hydraulic machine: 9-10 seconds.
- (v) Cycle time is measured from the time a car leaves a typical floor, travels one floor up or down, and the doors are 100% open, shall be a maximum of:
 - (i) Generator Field Control:
 - (1) Traction Machines: 3'-6" center opening doors: 10 seconds;
 - (2) 4'-0" center opening doors: 10.4 seconds; and
 - (3) For two speed doors add 0.5 (1/2) second.

- (w) Door open times shall be no more than:
 - (i) 3'-6" center opening 2.0 seconds;
 - (ii) 3'-6" two speed 2.2 seconds;
 - (iii) 4'-0" center opening 2.2 seconds;
 - (iv) 4'-0" two speed 2.4 seconds; and
 - (v) 3'-0" single slide 2.2 seconds;

3.8.1.4.2 Advance door operation shall not be provided.

3.8.1.4.3 Leveling accuracy under all load conditions shall be:

- (a) VVAC, VVDC & Generator Field Control: one half (½) inch; and
- (b) Hydraulic elevators: one half (½) inch.

3.8.1.4.4 Group Supervisory Systems: Keep duplex and group control operating at design criteria for the Operating Period.

3.8.1.4.5 Start to Stop Time: Maximum time in seconds for car to travel between typical floors from actual start to completion of leveling, regardless of load or travel direction.

3.8.1.4.6 Hydraulic elevator down single floor travel time may vary not more than 10% of contract speed from up times, regardless of load.

3.8.1.4.7 Speed from up times, regardless of load.

3.8.1.4.8 Doors Open Time: Maximum time in seconds from time doors start to open until doors are fully open.

3.8.1.4.9 Door Close Time: Minimum time in seconds from time doors start to close until doors are fully closed, without exceeding kinetic energy and closing force allowed by applicable Law.

3.8.1.5 Service/Freight Elevator Systems

3.8.1.5.1 In addition to the general requirements for hydraulic elevators set forth in Section 3.8.1.4 (Elevator Systems), service and freight elevators shall conform to the following specifications:

- (a) minimum capacity shall be four thousand (4,000) pounds;
- (b) minimum platform size shall be 6 feet-0 inches by 8 feet-9 inches nominally; 9 feet-0 inches high (all dimensions are unencumbered clear space);

- (c) door operation shall be 4 feet-0 inches by 7 feet-0 inches; two speed side slide automatic; and
- (d) finishes shall be stainless steel panels over baked enamel steel walls; flush ceiling with recessed lighting; resilient flooring.

3.8.1.5.2 Remote hydraulic stations shall not be permitted. All below grade hydraulic piping shall have welding joints and be installed in PVC enclosure with watertight joints. Means of oil leak detection in the enclosure shall be provided. All piping shall be suitable for petroleum oil product.

3.8.1.6 Escalators

In the event escalator systems are incorporated into the design, such systems shall conform to the following minimum requirements:

- (a) The minimum width for escalator steps shall be 48 inches with a speed of 100 fpm;
- (b) The control system shall provide smooth operation free of jars or bumps;
- (c) The speed of the escalator shall not vary plus or minus 5%; and
- (d) At 60°F temperature, the operating noise at a point 42 inches above any portion of the escalator system shall not exceed 58dBA.

3.8.2 Plumbing Systems

3.8.2.1 General Requirements

3.8.2.1.1 Piping shall not be installed in, pass through, or enter electrical rooms or telecommunications room, except as needed to serve the room itself. (This shall be shown on Work Submittals.)

3.8.2.1.2 Piping shall not contact gypsum board at any point. Provide a minimum of one half (½)-inch clearance.

3.8.2.1.3 The building plumbing systems shall have appropriate shut off valve zoning. Shut off valves shall be provided on each system to isolate each toilet room.

3.8.2.1.4 Identify piping and equipment components of the plumbing systems to indicate their function and system served. Pipe markers shall conform to ANSI A13-1 standards.

3.8.2.1.5 Insulation shall be required:

- (a) on all hot water systems; and
- (b) cold water and roof drainage piping where located in spaces with high humidity sources including but not limited to kitchens and any space served by a humidifier.

3.8.2.2 **Piping**

- (a) All below grade supply piping shall be minimum type K, hard temper, cold drawn.
- (b) All above grade supply piping shall be minimum type L, hard temper, cold drawn.
- (c) Cross-linked Polyethylene (PEX) and thinwall copper piping is not permitted.

3.8.2.3 **Fixtures**

- (a) All fixtures shall be low flow and WaterSense labeled. Except for Housing Areas, faucets and other water supply devices shall be motion sensor activated wherever possible, or shall include other automatic shut off. Flush valves shall be low flow manually operated flushometers. Faucets, flush valves or other water supply devices for Housing Areas shall be manual (metered) faucets.
- (b) Toilets: Toilets shall be wall hung, vitreous china, siphon jet action, Maximum Performance (MaP) tested by IAPMO to exceed 500g capacity.
- (c) Urinal: Urinals shall be wall hung, vitreous china.
- (d) Lavatory: Wall hung, vitreous china, 20-inch by 18-inch. Sanitary waste traps for equipment shall be "P" type, 17 gauge, cast brass, slip joint nuts, cast brass escutcheons, and cleanout plug. Visible traps shall be chrome plated.
- (e) Sink (Counter Mounted): 18 gauge, type 304 stainless steel sink counter mounted, single bowl, 19-inch by 18-inch by 10-inch deep stainless steel. Deck mounted low flow faucet, lever handle, gooseneck, rigid spout plain outlet. 17 gauge chrome plated 1-1/2-inch by 1-1/2-inch trap.
- (f) Fixtures with metal finishes exposed to and visible by Users shall have a polished chrome finish.

3.8.2.4 Site Domestic Water

3.8.2.4.1 Developer shall provide hose connections such that all paved areas are within 100' of a point of connection. Hose connections may be by above grade hose bibb or in-grade quick connect. Any above grade hose bibbs shall be connected to potable water system. In-grade connections may be connected to the Purple Pipe System. Any connections to Purple Pipe System shall be marked as non-potable.

3.8.2.4.2 Developer shall provide domestic water supply/sanitary sewer connections in connection with the following as specified in the Area Data Sheets:

Site Plumbing	
SPL1	None
SPL2	Hose Connection Only: Provide hose connections such that all paved areas are within 100 feet of a point of connection. Hose connections may be connected to the Purple Pipe System.
SPL3	Primary Plaza: Provide a minimum of one food service connection, comprising domestic cold water and one sanitary sewer drain with grease interceptor. The domestic cold water and sewer connection shall have lockable covers. Provide a minimum of one (1) hose bibb, with lockable cover for each 1,000 SF. No portion of the plaza shall be more than 60 feet from a hose bibb.
SPL4	Secondary Plaza: Provide a minimum of one hose bibb, in grade, with lockable cover for each 1,000 SF of plaza. Hose bibbs shall be connected to potable water systems.
SPL5	Loading Zone: Provide a minimum of one hose bibb, with lockable cover for each loading zone. Hose bibbs shall be connected to potable water system. For loading zones handling hazardous materials, for example at chemical delivery, or hazardous waste storage, provide fail-safe stormwater diversion to a holding tank or sanitary sewer.
SPL6	Sports Facility: Provide hose bibbs, with lockable covers, throughout the facility such that no location is more than 200 feet from a hose bibb. Provide potable water/bottle filling stations in all spectator and team areas, with a minimum of three (3) per sideline and two (2) for each team beach area.
SPL7	Courts: Provide hose bibbs, with lockable covers, throughout the facility such that no location is more than 200 feet from a hose bibb. Provide two (2) potable water/bottle filling stations.
SPL8	Pool: Provide hose bibbs, with lockable covers, throughout the facility such that no location is more than 200 feet from a hose bibb. Provide potable water/bottle filling stations in all spectator and team areas, with a minimum of one (1) per venue. Provide exterior shower.

Table 3.8.2.4.2: Site Plumbing

3.8.2.5 Building Domestic and Fire Water

3.8.2.5.1 The Building domestic water system shall provide for consumption and sanitary needs, industrial water needs, and process water needs.

3.8.2.5.2 The domestic water system shall include:

- (a) a reduced pressure backflow prevention (RPBP) device, installed in compliance with the requirements of Section 3.5.2.3 (Utility Devices). For Academic: Classroom: Class Laboratory Areas,

Academic: Research Areas and other critical Areas, provide two RPBP devices in parallel so one may be shut off for testing and repair without losing water service;

- (b) an accessible #20 mesh (1/32") main strainer with "blow down" capabilities to prevent well water sediment from reaching Building's water supply and fixtures;
- (c) a domestic water booster pump if the Building exceeds three (3) stories; and
- (d) injector fittings for incoming domestic water for water system chlorination testing.

3.8.2.5.3 Developer shall have the responsibility to perform any required water pressure calculations to determine the need for a booster pump.

3.8.2.5.4 All water booster pumps shall be controlled with variable speed drives in lieu of hydraulic controls.

3.8.2.6 Building Industrial Water

Industrial water shall be potable water used for industrial or laboratory uses isolated from base building potable water systems by vacuum breakers. Industrial water shall be obtained by installing RPBP devices at a tee, downstream from the Building's domestic water RPBP device.

3.8.2.7 Water Softener

3.8.2.7.1 Water softeners shall be provided to treat makeup water to all central water heaters and for high-use domestic water heating systems such as those serving Housing Areas.

3.8.2.7.2 Water softener shall be of the non-sodium-ion exchange type such as Scale Blaster or product of equal quality and specifications.

3.8.2.8 Domestic Hot Water

3.8.2.8.1 Domestic hot water shall be supplied to all lavatories, showers and sinks.

3.8.2.8.2 Recirculation pumps shall be required to maintain the design water temperature. Recirculation pumps and heat trace systems shall be enabled and disabled by the Building Management System (BMS), not by local aquastats.

3.8.2.8.3 Small or remote domestic hot water services may use instantaneous or semi-instantaneous point-of-use electric water heaters. These systems must fit within the Buildings' budget for maximum electric demand and annual electricity use, as set forth in Appendix 17 (Energy Utilities Management) of the Agreement. Storage water heaters and/or electric hot water recirculation systems shall not be permitted.

3.8.2.9 Sewage Systems

3.8.2.9.1 All toilet rooms, laundry rooms and first floor Trash/Recycling rooms shall have floor drains.

3.8.2.9.2 Make all cleanouts accessible. If cleanouts are installed in an accessible ceiling space, the cleanout shall be extended through the floor above. Use graphite on all cleanouts with all threads being thoroughly greased after acceptable pressure test.

3.8.2.10 Emergency Plumbing Fixtures

3.8.2.10.1 Emergency eye or eye/facewash equipment shall be provided in accordance with the Area Data Sheets. This equipment must meet the performance and installation requirements of American National Standards Institute (ANSI) Z358.1 1998.

3.8.2.10.2 Intentionally deleted

3.8.2.10.3 A combination eyewash/emergency shower shall be provided in accordance with the Area Data Sheets. The combination unit must be located so that the travel distance is no more than 10 seconds or 100 feet with no obstructions and only one door to pass through to reach the unit.

3.8.2.10.4 Hand held drench hoses shall not be considered eyewash units. In some cases, a sink-mounted eyewash and a drench hose may be installed in lieu of a combination eyewash/safety shower. Such cases shall be discussed by Developer's Authorized Representative and the Owner's Authorized Representative.

3.8.2.10.5 All emergency plumbing fixtures shall be:

- (a) supplied by domestic cold water (tempered water shall not be required due to mild cold water temperatures);
- (b) readily visible and accessible to the laboratory or work site. The unit shall be located as close to the hazard as possible and cannot be blocked by building structures, cabinets, supplies or equipment;
- (c) provided with an activation device, such as stay open ball valve, that allows the user full movement of both hands after the valve is turned on;
- (d) identified with a highly visible sign; and
- (e) located so as not to pose an electrical shock hazard. No electrical outlets shall be permitted within six (6) feet unless such electrical outlets are GFI protected.

3.8.2.10.6 In addition to the requirements set forth in Section 3.8.2.10.5, all eyewash units shall be:

- (a) regulated to provide a spray force of 0.4 gallons per minute at 30 psi;
- (b) mounted such that the water nozzles are 33 inches to 53 inches from the floor level; height shall also comply with ADA requirements; and
- (c) mounted so that spray nozzles, when activated, are no more than 18 inches from the counter front when located above work counters or benches.

3.8.2.10.7 In addition to the requirements set forth in Section 3.8.2.10.5, emergency shower units shall be:

- (a) Installed and located so both the shower and eyewash can be used at the same time by one person;
- (b) Adequately supplied with potable water to meet the requirements of each component. The shower must be able to deliver a minimum of 20 gallons per minute. The diameter of the water pattern of the shower measured 60 inches above the surface on which the user stands must be a minimum of 20 inches. The center of the spray pattern shall be located at least 16 inches from any obstruction; and
- (c) Installed so that the shower head is not less than 82 inches or more than 96 inches from the surface on which the user stands.

3.8.2.11 Rainwater Management

3.8.2.11.1 Downspouts may be used for building rainwater management, provided downspouts along the Academic Walk (as identified in the Project Master Plan) and on facades facing landscaped areas:

- (a) are connected to sub surface storm water systems;
- (b) occur at articulated corners of the Buildings;
- (c) are complementary to the architectural style and Building aesthetic in terms of location, profile and color;
- (d) do not exceed 8" in any dimension; and
- (e) are not used to drain large contiguous and flat roof areas over 18,000 square feet.

3.8.2.11.2 Where downspouts discharge onto paved areas other than Academic Walk (as identified in the Project Master Plan), water flows shall be managed to limit

volume and rate of flow to eliminate nuisance flooding. Standing water shall not be permitted.

3.8.3 Mechanical Systems

3.8.3.1 General Requirements

3.8.3.1.1 Developer shall comply with the following Manuals and Guidelines in performing the Work in respect of mechanical systems and associated support system designs:

- (a) ANSI - American National Standards Institute, Inc.;
- (b) FM - Factory Mutual;
- (c) UL - Underwriter's Laboratories, Inc.; and
- (d) SMACNA – Sheet Metal Contractor's National Association.

3.8.3.1.2 The Buildings shall also be designed to comply with the following Manuals and Guidelines, except where relevant codes exceed the requirements of the Manuals and Guidelines:

- (a) ASHRAE 55-2013;
- (b) ASHRAE 62.1-2013; and
- (c) ASHRAE 90.1-2013.

3.8.3.1.3 The installation or utilization of mechanical systems that use chlorofluorocarbons or hydrochlorofluorocarbons shall not be permitted.

3.8.3.2 Design Temperature and Humidity

3.8.3.2.1 Weather

The weather conditions set forth in Table 3.8.3.2.1 (Exterior Temperature Design Requirements) shall be utilized in the design of the Buildings and Facilities.

Design Condition	Design Requirements
California Climate Zone	12
Summer Design Conditions (1%)	100°F, MCWB 69°F
Winter Design Conditions (99%)	28°F
HDD	2430
CDD	995
Average Annual Rainfall	13.08 inches

Table 3.8.3.2.1: Exterior Temperature Design Requirements

3.8.3.2.2 Internal Space Temperatures

The design temperatures in Table 3.8.3.2.2 (Interior Temperature Design Requirements) shall be utilized for HVAC system and equipment sizing selection.

Design Condition	Heating	Cooling
100% Outdoor Air Systems: Outside air drybulb temperature	21°F	105°F
100% Outdoor Air Systems: Outside air wetbulb temperature	–	75°F
Recirculating Air Systems: Outside air drybulb temperature	27°F	100°F
Recirculating Air Systems: Outside air wetbulb temperature	–	69°F
Evaporative Cooling Systems: Outside air wetbulb temperature	–	74°F
Room drybulb temperature, interior offices ⁽¹⁾	70°F	73°F
Room drybulb temperature, all other spaces ⁽¹⁾	70°F	75°F
Room relative humidity, all spaces	(2)	(2)
IDF/MDF room drybulb temperature	–	75°F
Computer Room drybulb temperature	–	(4)
IDF/MDF/ Computer Room relative humidity	(3)	(3)
Rooms with batteries where required by battery manufacturer	–	77°F
Electrical and telephone room drybulb temperature	–	85°F
Hydraulic elevator machine room drybulb temperature	65°F	85°F
MRL elevator controller room drybulb temperature	50°F	100°F
Notes: ⁽¹⁾ Indoor drybulb temperatures may be adjusted from the values listed provided they comply with ASHRAE Standard 55. ⁽²⁾ Humidity (high or low) shall not be directly controlled in any space unless a specific process or material requires it, in which case the room shall be isolated from other areas with full height partitions, sealed doors with closers, and vapor barriers to allow only this space humidity to be controlled. ⁽³⁾ Data centers with enclosed hot aisles shall be designed for 80°F supply air to “cold” aisles and minimum 100°F return air temperature from hot aisles. Those without enclosed aisles shall be designed as per IDF/MDF rooms. ⁽⁴⁾ IDF, MDF, and Computer Rooms do not require any humidity control; humidifiers and reheat coils shall not be used.		

Table 3.8.3.2.2: Interior Temperature Design Requirements

3.8.3.2.3 Internal load shall be based on the densities listed in Table 3.8.3.2.6(c) (Internal Loads) unless otherwise specified in the Technical Requirements and Contract Documents.

3.8.3.2.4 Developer shall be responsible for calculating all internal loads not specified in Table 3.8.3.2.6(c) (Internal Loads).

3.8.3.2.5 All lighting loads shall be designed and documented on the electrical drawings.

3.8.3.2.6 Central air handler and overall building loads and associated duct and piping mains may be reduced using diversity factors. The following diversity factors are suggested but the final values shall be at the discretion of the EOR or AOR:

- (a) occupants: 75%;
- (b) equipment: 50%; and
- (c) lights: 90%.

Occupancy	Equipment (W/ft ²)	People		
		Density (ft ² /person)	Sensible (Btu/hr per person)	Latent (Btu/hr per person)
Very High Intensity Facilities				
Core Labs	15	300	275	275
Laboratory Support	15	300	275	275
High Intensity Facilities				
Laboratories	7	80	275	275
Dining/Food Service	7	30	275	275
Wellness/Clinic	7	4	275	275
Medium Intensity Facilities				
Academic	1.25	20	250	200
Office	1.25	100	250	200
Low Intensity Facilities–				
Housing –	0.75	8	250	200
Student Activity	0.75	8	250	200
Recreation	0.75	120	250	275

Table 3.8.3.2.6(c): Internal Loads

3.8.3.3 Specific Area Data Sheet Requirements

Developer shall design and construct the Buildings to meet the performance requirements set forth in Tables 3.8.3.3A, 3.8.3.3B, 3.8.3.3C, 3.8.3.3D, and 3.8.3.3E, as indicated in the Area Data Sheets:

Temperature	
TR1	Heating/Cooling 70/73°F, +/- 3°F
TR2	Heating/Cooling 70/75°F, +/- 3°F
TR3	Heating/Cooling 70/73°F, +/- 1°F
TR4	Heating/Cooling 65 °F/80 °F

Table 3.8.3.3A: Temperature

Air Changes	
VR1	Base Building (30% greater than ASHRAE/T24)
VR2	6/4 (Occupied/unoccupied) air changes per hour
VR3	17/17 (Occupied/unoccupied) air changes per hour

Table 3.8.3.3B: Air Changes

HVAC Pressure	
HV-P1	Negative Pressure
HV-P2	Neutral Pressure
HV-P3	Positive Pressure
HV-P4	Balance pressures as required for adjoining spaces and fire/life safety

Table 3.8.3.3C: HVAC Pressure

Recirculation	
HV-R1	Recirculated air permitted
HV-R2	100% outside air supply and exhaust with pressure control: 20% of supply air may come from adjacent office areas.
HV-R3	Room may be supplied with recirculated air. Room air must be 100% exhausted
HV-R4	Recirculation is permitted within room or apartment. Room/apartment supply and exhaust must be 100% from central system with no intercommunication between rooms/apartments except at central air handler systems.

Table 3.8.3.3D: Recirculation

Thermostat Control	
HV-T1	Room Thermostat with +/- 2 degree control. May be zoned with similar rooms on identical exposure, maximum 3 rooms per zone
HV-T2	Individual room zone control, no user thermostat
HV-T3	Room Thermostat with +/- 5 degree control
HV-T4	User Thermostat for Suite/Apartment with +/- 2 degree control

Table 3.8.3.3E: Thermostat Control

3.8.3.4 Ventilation

3.8.3.4.1 Outdoor air rates shall be the larger of:

- (a) California Building Code; or
- (b) 30% larger than ASHRAE Standard 62.1 rates at the breathing level (per LEED EQ credit Enhanced Indoor Air Quality Strategies).

3.8.3.4.2 Outdoor air measurement and control and/or CO₂ sensors are required in accordance with LEED EQ credit Minimum Indoor Air Quality Performance and Enhanced Indoor Air Quality Strategies and California Building Code.

3.8.3.4.3 Operable windows shall not be the sole source of ventilation for any livable space, including Housing Areas. Because of the extreme weather, outdoor air shall be preconditioned prior to introducing into livable spaces.

3.8.3.4.4 Systems relying on infiltration drawn in by negative pressure from exhaust systems shall not be permitted. This requirement effectively means that outdoor air to Housing Areas served by four (4) pipe fan coil units shall be supplied by a dedicated outdoor air system. Dampers shall be installed to shut off outdoor air supply to rooms with open windows as indicated by the required window switch, except in Housing Areas.

3.8.3.5 General Exhaust Systems

3.8.3.5.1 Exhaust systems shall meet the rates listed in Part 4 (California Mechanical Code), Title 24 of the California Code of Regulations, or ASHRAE Standard 62.1, whichever is more stringent, except the following higher rates shall be used:

- (a) Toilet rooms (both public and private): 75 cfm per fixture;
- (b) Shower rooms: 90 cfm per shower head; and
- (c) Printer/Copy Rooms and rooms with chemical handling shall be exhausted to the outdoors sufficient to maintain a 0.05 inches negative pressure per LEED EQ 5 (Enhanced Indoor Air Quality Strategies).

3.8.3.6 Laboratory Exhaust Systems

3.8.3.6.1 Laboratory ventilation rates are indicated in the Area Data Sheets, as applicable. Supply air rates to laboratories and animal rooms shall be smaller than exhaust rates by an amount required to maintain 0.05 inches to 0.08 inches negative pressure relative to non-laboratory areas, except where Area Data Sheets indicate neutral or positive pressure requirements.

3.8.3.7 Air Recirculation

Recirculation of laboratory or animal room air to other parts of the Building is not allowed under any circumstances.

3.8.3.8 Filtration

3.8.3.8.1 Air handlers serving all livable spaces shall include:

- (a) Two (2) inch MERV 8 pleated prefilter. This filter shall serve as a construction filter and be permanently removed post-construction; and
- (b) Fifteen (15) inch MERV 13 bag filter.

3.8.3.8.2 Fan-coils and other air handlers serving non-livable Areas shall be protected with minimum two (2) inch MERV 8 pleated filters.

3.8.3.8.3 Exhaust for biohazard and radioactive material cabinets shall include HEPA filters with bag-in/bag-out cabinets.

3.8.3.9 Building Air Balance

A robust space by space and whole building air balance shall be developed as part of the detailed design process.

3.8.3.10 HVAC Zoning

3.8.3.10.1 All areas of a Building shall be zoned as required to prevent non-uniform temperatures due to variable heat gain from factors including outdoor exposure or variation in people density. Each zone shall have its own thermostat(s) and terminal unit.

3.8.3.10.2 All interior zones shall have heating capability to prevent overcooling except for the following:

- (a) spaces with high internal loads;
- (b) spaces that are not considered livable per the California Mechanical Code, such as BDF/IDF rooms and small storage rooms; these spaces do not require ventilation so supply air can be fully shut off if the space gets cool;
- (c) spaces with transfer fans or fan-powered VAV boxes that can maintain minimum ventilation rates without primary supply air; and
- (d) open office interior spaces that are open to exterior zones with heat; the exterior zones can be designed to maintain minimum ventilation for both zones.

3.8.3.11 Noise From Mechanical Systems

3.8.3.11.1 HVAC systems shall be designed to maintain the NC levels set forth in Table 3.8.3.11.1 (Allowable NC Levels for Mechanical Systems) under normal operating conditions when spaces are occupied.

Area	Maximum NC
Lecture Halls Large Classrooms Teleconference	25
Small Classrooms Private offices General conference rooms	30
Open offices Corridors Reception/lobbies	40
Toilet rooms Storage	45
MDF/IDF/Computer rooms	55
Laboratories	40

Table 3.8.3.11.1: Allowable NC levels for Mechanical Systems

3.8.3.11.2 Control of fan noise shall be achieved primarily through good acoustical design practice including air handler and duct design. Internal duct liner shall be acceptable at fan inlets and outlets and terminal unit discharge ducts and plenums, but shall be limited to that required to meet Noise Criteria. Liner shall not be used where it may get wet or on contaminant exhaust systems. Sound attenuators shall not be permitted.

3.8.3.11.3 Reliability and Redundancy

3.8.3.11.4 The following applications shall have fully redundant (N+1) devices in parallel such that failure of one device will not reduce capacity below design capacity:

- (a) laboratory exhaust fans serving fume hoods;
- (b) laboratory areas hot water pumps;
- (c) laboratory areas chilled water pumps;
- (d) air handlers serving critical computer rooms; and
- (e) fans in air handlers serving labs.

3.8.3.11.5 Full redundancy is desired for classroom Buildings, but not required.

3.8.3.11.6 The following applications shall have a minimum of N devices in parallel, each sized for $1.2/N$ of the load where $N=2$ at a minimum:

- (a) non-laboratory Areas hot water pumps;

- (b) non-laboratory Areas chilled water pumps; and
- (c) fans in air handlers larger than 20,000 cfm.

3.8.3.11.7 In general, where two or more devices operate in parallel, automatic backdraft dampers/check valves shall be provided to prevent backflow and each device shall have its own variable speed drive.

3.8.3.11.8 When the number of fans is six (6) or more, backdraft devices are not required provided slots are installed at each fan inlet to allow a fan to be manually blanked off should it fail. Fan arrays shall have a minimum of two variable speed drives per air handler except laboratory air handlers shall have a variable speed drive per fan.

3.8.3.11.9 Variable speed drives shall include bypass starters controllable via the BMS except for the following applications:

- (a) where more than one device, each with a VSD, is provided in parallel (the redundant equipment and VSD provides sufficient redundancy);
- (b) supply fans in VAV air handlers (to prevent damage to duct systems when VAV boxes close at low loads); and
- (c) three (3) HP motors and smaller (to control costs).

3.8.3.12 Laboratory Plume Dispersion Modeling

A wind tunnel model or CFD evaluation shall be performed for each new Building housing laboratories with fume hoods. The wind tunnel/CFD study shall be used to demonstrate the exhaust stack height, and exit velocity, based on exhaust location, wind speed and direction, Building features, and any nearby buildings that could influence dispersion. Fume hood stack height shall be as tall as feasible within architectural constraints to reduce stack velocity and fan energy, and in no case shall be less than ten (10) feet above the adjacent accessible roof surface.

3.8.3.13 Maintenance Access

3.8.3.13.1 Space shall be provided around all equipment for routine maintenance and inspection in strict accordance with recommendations of the manufacturer. Mechanical drawings shall show dashed maintenance access envelopes for all equipment to ensure space is provided during the design phase.

3.8.3.13.2 For motors over five (5) HP, a lifting eye to be provided over the motor to allow ease of replacement.

3.8.3.13.3 Air handlers, pumps, and other major equipment shall be accessible without having to climb a ladder.

3.8.3.13.4 Equipment such as terminal units located above ceilings shall be located where readily accessed for maintenance. Where possible, locate units in corridors or

within the space directly over entry doors where it is assured no furniture or equipment will be located below. Equipment shall not be located over:

- (a) light fixtures;
- (b) ceiling height partitions;
- (c) large, difficult-to-move furniture such as file cabinets, lab benches, and desks; and
- (d) inaccessible ceilings, including drywall or mechanically fastened ceilings, unless there are no practical options. If required, access doors shall be provided to allow for complete and ready access to filters, valves, and all components requiring routine maintenance.

3.8.3.13.5 Access doors or panels shall be provided in HVAC equipment, ductwork, and plenums as required for in-situ inspection and cleaning of the following:

- (a) outdoor air intake plenums;
- (b) mixed air plenums;
- (c) upstream from all heating coils, including those in VAV boxes;
- (d) upstream and downstream surface of cooling coils;
- (e) filters;
- (f) drain pans; and
- (g) fans.

3.8.3.14 Metering and Monitoring Requirements

3.8.3.14.1 Developer shall provide the necessary metering and monitoring capabilities to monitor the energy use and other environmental parameters for each facility to facilitate several objectives, including:

- (a) disaggregated measurement of loads in compliance with Title 24 requirements;
- (b) verification that energy systems perform as designed and that performance is maintained over time;
- (c) tracking of energy use in comparison to targets;
- (d) recharge of utility costs for non-state operating units; and
- (e) use of the facility itself as a “living laboratory” for the study of engineering and resource conservation through the ability to

determine lighting load diversity, documenting actual plug loads for typical Areas, and determining operable window usage patterns.

3.8.3.14.2 The minimum requirements for the metering and monitoring systems shall include:

- (a) Incoming utilities to each building, including electricity, natural/bio gas, and chilled water (when served by a remote central plant);
- (b) All small power loads; and
- (c) Any additional metering required to provide a measurement and verification process that is in compliance with the requirements of IPMVP and LEED 2009.

3.8.4 Building Management System

Developer shall install a comprehensive building management system that is licensed for use with the Owner's existing building management system, Automated Logic Corp (ALC). The BMS installed by Developer shall be native BACNet, capable of interfacing directly with WebCTRL, the current interface for the Existing Campus, without intermediate gateways. At a minimum, all Building controllers shall be B-BC and B-AAC BTL certified through BACNet International.

3.8.5 Electrical and Lighting Systems

3.8.5.1 General Requirements

3.8.5.2 Specific Area Data Sheet Requirements

3.8.5.2.1 Developer shall install power outlets as required in Appendix 6 (Area Data Sheets) of these Technical Requirements. Where no requirement is stated in the Area Data Sheet for an Area, outlets shall be installed in accordance with applicable Law. Where Area Data Sheet requirements are below code minimum, additional outlets shall be added to comply with applicable Law.

3.8.5.2.2 Developer shall design and construct the Facilities in accordance with the requirements set forth in Tables 3.8.5.2.2A and 3.8.5.2.2B, as indicated in the Area Data Sheets:

Stand-by Power	
PE1	25% outlets on stand-by power
PE2	100% stand-by power for outlets, mechanical systems and all room support systems

Table 3.8.5.2.2A: Emergency Power

Power Density	
PW1	1W/ASF
PW2	3W/ASF
PW3	5W/ASF
PW4	8W/ASF
PW5	12W/ASF
PW6	Per Kitchen Design

Table 3.8.5.2.2B: Power Density

3.8.5.3 Minimum Materials Standards

- (a) Medium-voltage cable:
 - (i) Selection shall be based on all aspects of cable operation and on the installation environment, including corrosion, ambient heat, rodent attack, pulling tensions, potential mechanical abuse, and seismic activity;
 - (ii) Conductors rated above 150 amperes may be copper or aluminum, insulated with cross-linked polyethylene (XLP) or ethylene propylene rubber (EPR); and
 - (iii) Conductors rated 150 amperes and below shall be copper. Insulation must be rated at 133 percent. Individual conductor size must not exceed 240 mm² (500 mcm).
- (b) Branch Wiring Distribution Systems:
 - (i) Conductors shall be copper;
 - (ii) Lighting – Circuit Loading:
 - (1) 120 volt circuits must be limited to a maximum of 1,400 volt-amperes; and
 - (2) 277 volt circuits must be limited to a maximum of 3,200 volt-amperes.
 - (iii) Circuit Loading:
 - (1) 120 volt circuits for convenience receptacles must be limited to a maximum of 1,440 volt-amperes (8 receptacles at 180 watts).

(c) Floor set power outlets:

- (i) In-floor power outlets shall be recessed or flush as noted in the ADS. Raised or monument outlets shall not be permitted.
- (ii) All flush floor outlets shall have captive/hinged covers that can be held closed by turn screw or similar positive latching mechanism.
- (iii) Recessed outlet boxes shall have hinged covers with wire slots and be large enough to fully enclose any standard 120V plugs, such that the lids close fully when outlets are in use.
- (iv) All outlet boxes and covers shall be corrosion resistant construction and liquid-tight where likely to be exposed to liquid.

(d) Direct Buried Conduit

- (i) Direct buried Schedule 80 PVC, coated intermediate metallic conduit (IMC), or rigid galvanized steel is acceptable except under roads, permanent pavement, areas subject to vehicular traffic, and areas where service reliability is paramount such as fire access or emergency access areas. Backfill around the conduits must be selected based on the thermal conductivity and be free of materials detrimental to the conduit surface.
- (ii) Depths to the top of the conduit must not be less than 24 inches below finished grade and provide metallic detectable warning tape above ducts and locate 12" below finished grade.
- (iii) Maintain at least 3 inches of clearance from the conduit to each side of the trench.

(e) Concrete-Encased Ductbanks:

- (i) Concrete-encased PVC Schedule 40 ductbanks must be used where runs are under roads, permanent pavements, areas subject to vehicular traffic, and where service cannot be interrupted such as fire access or emergency access areas.
- (ii) Concrete encasement in areas subject to vehicular traffic shall be a minimum of 3,000 psi strength concrete. Concrete encasement in other areas shall be a minimum of 2,000 psi strength concrete.

- (iii) Concrete-encased ductbanks shall be provided with a minimum of 1/0 bare copper ground wire embedded in the encasement.
- (iv) Concrete-encased ducts must be provided with a cover that is at least 750 millimeters (30 inches) thick. Ducts must slope toward manholes and all entries into buildings must have watertight seals. Changes in direction must be by sweeps with a radius of 1.2 meters (4 feet) or more. Stub-ups into electrical equipment may be installed with manufactured elbows.
- (v) Ducts must be sized as required for the number and size of cables. All ducts for medium-voltage services must be a minimum of 100 millimeters (4 inches). Inner ducts must be provided inside communication ducts wherever fiber optic cables will be used. A minimum of 25% spare ducts must be provided for unknown future expansion and/or cabling replacement.
- (vi) Conduit Systems:
- (vii) ENT – Electrical Non-metallic tubing shall not be permitted.
- (f) Main Switchgear (480 V Service):
 - (i) In the case of double-ended substations, all main and secondary feeder breakers must be draw-out power type. Breakers with solid state trip units shall have modbus communications allowing the trip units to be remotely monitored via the BMS system.
 - (ii) All breakers in the 480 volt-rated service main switchgear must be fully rated. Series rating is not to be permitted. Main and feeder breakers must be provided with integral solid-state ground-fault protection tripping elements.
- (g) Main Switchgear and Switchboards (208 V Service):
 - (i) Switchboards with 208 V service, including substation secondary switchboards, must be freestanding and provided with a single main service disconnect device. This main device must be insulated case, power air circuit breaker, or bolted-pressure fusible switch, have ground fault protection, and must be individually mounted, drawout type (as applicable). Insulated case and power air circuit breakers must be electrically operated. Branch feeders must be protected by fusible load-break switches or by fully rated molded case circuit breakers. Front access is required.

- (h) Surge Suppression:
 - (i) Surge suppression on the main incoming service secondary switchboard must be provided.
- (i) Panelboards:
 - (i) Panelboards must be constructed to comply with the requirements of UL 67 and UL 50;
 - (ii) All panelboard interiors must be constructed using hard-drawn copper of 98% conductivity, with AIC bracing greater than the calculated available fault current. The minimum short circuit rating for 208Y/120V panelboards must be 10,000 amperes symmetrical. The minimum short circuit rating for 480Y/277V panelboards must be 14,000 amperes symmetrical. A 200 percent neutral must be provided for panelboards serving office loads feed from the secondaries of K-rated transformers or harmonic canceling transformers. A full-size copper ground bus for connecting ground conductors must be bonded to the steel cabinet. Provide isolated ground bus where required; and
 - (iii) Branch circuit breakers must be bolt-on designed for replacement without disturbing the adjacent units. Breakers must comply with the requirements of UL 489, thermal magnetic type with a short-circuit rating greater than the calculated available fault current. Panels must be specified with "door-in-door" trim.

3.8.5.4 Power Systems

3.8.5.4.1 Switchgear Configurations

- (a) Buildings housing Laboratory functions shall have indoor, dry-type, secondary unit substations with medium-voltage switchgear as the primary sections, stepdown dry-type transformers, and drawout switchgear with power circuit breakers for secondary distribution. Circuit breakers shall have communications capabilities for load monitoring.
- (b) Other Building types shall have pad-mounted medium-voltage transformer and switchgear at the exterior of buildings.

3.8.5.4.2 Building Utilization Voltages

- (a) 277/480volts, 3-phase, 4-wire shall be used for all Buildings over 3,000 GSF.
- (b) 120/208volts, 3-phase, 4-wire may be used on smaller Buildings.

3.8.5.4.3 Distribution

Table 3.8.5.4.3 (Electrical Service Sizing) shall be the basis for electrical service sizing for the different types of Areas within the Project. Mechanical system loads are based on building being served by the Central Plant for both chilled and hot water.

Load Type	Wattage per Square Foot			
	Academic and Administration	Laboratories	Housing	Dining Areas
Interior lighting	1.5	1.5	3.0 ¹	1.5
Plugs & Equipment	3.0	7.0 ³	-	1.0 / 45.0 ²
Mechanical equipment	2.5	3.5 ⁴	2.5	3.0
Elevator equipment	1.0	1.0	0.8	-
Misc. equipment	0.5	0.5	0.5	0.5
Total building load	8.5	13.5	6.8	22.0 ⁵
<p>Notes:</p> <p>¹ For Housing Areas, this load includes plugs loads for general use as defined by applicable Law, which also allows for a demand factor to be applied here as well.</p> <p>² 1.0w/sf shall be applied to the Central Dining Area and 45.0w/sf shall be applied to kitchen and service area spaces.</p> <p>³ Load includes both plug and laboratory equipment.</p> <p>⁴ Increased mechanical system loading due to hood exhausts and ventilation requirements.</p> <p>⁵ This will vary based on the size of the kitchen and service area space.</p>				

Table 3.8.5.4.3: Electrical Service Sizing

3.8.5.4.4 Generator System

3.8.5.4.5 The emergency and standby generator system must consist of one or more central engine generators and a separate distribution system with automatic transfer switches, distribution panels, lighting panels, and, where required, dry-type transformers feeding 208Y/120V panels. A permanently installed load bank, sized at a minimum of 50% of generator rating, must be provided. The load bank may be factory mounted to the radiator. Developer shall select materials that will tolerate the high temperatures associated with radiator-mounted load banks to include belts, flex connections, motors, sprinkler heads, and so on.

3.8.5.4.6 The engine generators must be sized to serve approximately 150% of the design load and to run at a maximum of 60% to 80% of their rated capacities after the effect of the inrush current declines. When sizing the generators, the initial voltage drop on generator output due to starting currents of loads must not exceed 15%. Day tanks must be sized for a minimum capacity of four hours of generator operation. Provide direct fuel oil supply and fuel oil return piping to the on-site storage tank. Care must be exercised in sizing fuel oil storage tanks by taking into account that the bottom 10% of

the tank is unusable and that the tank is normally not full (normally at a 70% level) before the operation of the generator.

3.8.5.4.7 Generator alarms must be provided on the exterior wall of the generator room. All malfunctions must be transmitted to the BAS. In all buildings, with or without BAS, a generator alarm annunciator must be located within the fire command center. The generator output breaker must have a contact connected to the BAS indicating output breaker position, to allow annunciation of the open position on the BAS.

3.8.5.4.8 Automatic transfer switches serving motor loads must have in-phase monitors (to ensure transfer only when normal and emergency voltages are in phase) to prevent possible motor damage caused by an out-of-phase transfer. They must also have pretransfer contacts to signal time delay returns in the emergency motor control centers.

3.8.5.4.9 Automatic transfer switches must include a bypass isolation switch that allows manual bypass of the normal or emergency source to ensure continued power to emergency circuits in the event of a switch failure or required maintenance.

3.8.5.4.10 Developer shall install emergency and standby generators as specified in the Area Data Sheets.

3.8.5.4.11 Unless otherwise specified in the Contract Documents, emergency generator fuel tanks shall be designed for a 96-hour capacity of continuous operation.

3.8.5.5 Power Monitoring Systems

3.8.5.5.1 All Facilities shall incorporate power monitoring systems to monitor the total electrical demand load at the service entrance of the Facility, and to monitor each Facility System comprising the total load. The Facility System loads that shall be separately monitored are:

- (a) lighting, including egress and exits, and exterior;
- (b) HVAC system;
- (c) plumbing system;
- (d) plug loads;
- (e) elevator loads;
- (f) equipment loads (non-HVAC or plumbing) 25kVA or greater; and
- (g) electric vehicle charging stations.

3.8.5.5.2 Where Facility electrical services are greater than 250kVA, the above separation of loads for lighting, HVAC, and plugs will need to be separated by floor as well.

3.8.5.5.3 Communication type circuit breakers shall be used at the Facility main switchboard or substation. These breakers are specified to monitor the following minimum functions or features:

- (a) circuit breaker status, “Open/Closed;”
- (b) AC current in each phase, neutral and ground;
- (c) circuit breaker address and name;
- (d) watts;
- (e) VA;
- (f) kWh;
- (g) KVAR;
- (h) frequency; and
- (i) power factor.

3.8.5.5.4 Additionally, the main switchboards or substations shall include a breaker interface module that ties all the communication circuit breakers together back to this central point to monitor and display the functions/features outlined above. The breaker interface module shall communicate this information to the BMS.

3.8.6 Lighting Systems

3.8.6.1 Specific Area Data Sheet Requirements

3.8.6.1.1 Except as provided in Section 3.8.6.1.2, Developer shall design and build the Facilities to include the following lighting systems as indicated in the Area Data Sheets:

Lighting	
L1	Typical for classrooms, laboratories, large meeting rooms: 50 FC at work surfaces and teaching displays with multiple sets
L1.1	For laboratory bench surfaces shadowed by or directly beneath bench shelving where no task lighting is used, as contemplated in <u>Section 3.8.6.1.2</u> : 30 FC at the bench surface
L2	Typical for offices & other work spaces: 35 FC at work surfaces
L3	Typical for conference rooms: 35 FC at work surfaces and walls
L4	Typical for dormitory rooms: 15 FC ambient
L5	Typical for circulation, stairwells, public areas: 25 FC ambient with focus lighting areas
L6	Typical for service & utility: 40 FC ambient, 70 FC at any service points or equipment
L7	Typical for restrooms, locker rooms: 25 FC ambient

Table 3.8.6.1: Lighting

3.8.6.1.2 Academic: Classroom: Class Laboratory Areas and Academic: Research Areas shall meet L1 lighting requirements, except where Owner has elected to omit task lighting below laboratory bench module casework, in which case the L1.1 lighting requirements shall be met at the laboratory bench surface.

3.8.6.2 Lighting Fixtures Optionality

Developer shall provide to the Owner for review and approval, a minimum of three (3) options for the predominant type of lighting fixtures within an Area. The lighting fixture options provided must present choices in appearance and functionality.

3.8.6.3 Lighting Quality

3.8.6.3.1 Luminance Balance

Illuminance uniformity and balance shall not exceed 3 to 1 for task to immediately surrounding areas and 40 to 1 at any point in any space.

3.8.6.3.2 Color Appearance

The color corrected temperature (CCT) shall be 4,000K. The color rendering index shall be 80 or greater.

3.8.6.3.3 Illumination levels

Illumination levels shall be as specified in the Area Data Sheets. Minimum surface reflectance levels shall be 80% for ceilings, 50% for walls, and 20% for floors.

3.8.6.4 Lighting Layers and Controls

3.8.6.4.1 Lighting Layers

Developer shall provide multiple lighting layers, including general room lighting and functional lighting as appropriate for room uses. Functional layers include focus lighting, downlights, wall illumination, task lighting and such like. Lighting layers shall be controlled through the lighting control system and individual occupant controls as required by room function.

3.8.6.4.2 Lighting Controls

Developer shall design and build the Facilities to include the following lighting controls as indicated in the Area Data Sheets:

Lighting Control	
LC1	<p>Performance or Lecture Space: Lighting layers and presets shall include multiple room settings for all planned room uses. Systems shall accommodate, at a minimum: lecture, stage presentation, projected image, video screen image, classroom participation mode, etc., and shall allow multiple audience lighting levels. TEAL classrooms shall include controllable work group lighting.</p> <p>All fixtures to be controlled via occupancy sensors and a local scene control dimming system. The local scene control shall be from devices at the Front of House (or lectern, where provided) and at the rear of the room. Each fixture type within the room shall be under a single lighting zone. The lighting zones together make up scenes which the dimming system shall have the capabilities to program and control.</p> <p>Fixtures at the perimeter shall have a photocell as well and have the capability to dim the fixtures closest to the window independently from the other fixtures.</p> <p>The scene control dimming system shall control the window shades. System shall have a separate zone for each window orientation and shade type (room darkening and blackout).</p>
LC2	<p>Classroom and Multipurpose Room: Lighting layers and Presets shall include multiple room settings for all planned room uses. Systems shall accommodate, at a minimum: class, projected image, video screen image and classroom participation mode.</p> <p>All fixtures to be controlled via occupancy sensors and a local scene control dimming system. The local scene control shall be from devices at the Front of House (or lectern, where provided). Each fixture type within the room shall be under a single lighting zone. The lighting zones together make up scenes which the dimming system shall have the capabilities to program and control.</p> <p>Fixtures at the perimeter shall have a photocell as well and have the capability to dim the fixtures closest to the window independently from the other fixtures.</p> <p>The scene control dimming system shall control the window shades. System shall have a separate zone for each window orientation and shade type (room darkening and blackout)</p>
LC3	<p>Conference Rooms: Lighting layers and Presets shall include room settings for all planned room uses. Systems shall accommodate, at a minimum: meeting, projected image, and video screen image</p> <p>All fixtures to be controlled via occupancy sensor and low-voltage switch (dimmed or bi-level control depending on fixture type). Each fixture type within the room shall be under a single lighting zone.</p> <p>Window blinds, if not controlled by scene controller shall have independent switching located adjacent to room switching/controller</p> <p>Large conference rooms with multiple scene sets shall include scene controller, which shall also control window shades.</p>
LC4	<p>Closed Offices and Work Spaces: Lighting layers shall include room settings for all planned room uses. Systems shall accommodate, at a minimum: general room lighting and task lighting.</p> <p>All fixtures to be controlled via occupancy sensor and line or low-voltage switch (dimmed or bi-level control depending on fixture type). Each fixture type within the room shall be under a single lighting zone.</p> <p>Window blinds may be manually operated, unless automatic control is required by energy management system or building design.</p>

Lighting Control	
LC5	<p>Open Office: Lighting layers shall include room settings for all planned room uses. Systems shall accommodate, at a minimum: general room lighting and task lighting.</p> <p>All fixtures to be controlled via occupancy sensor and low-voltage switch (dimmed or bi-level control depending on fixture type). Each fixture type within the room shall be under a single lighting zone. Open office areas shall be zoned to separate daylight areas from non daylight areas, and to match planned usage. Plug control is also required and shall be controlled in groups via local occupancy sensors or remote relays.</p> <p>Window blinds may be manually operated, unless automatic control is required by energy management system or building design.</p>
LC6	<p>Workrooms / Utility: Lighting layers shall include, at a minimum, general room lighting.</p> <p>All fixtures to be controlled via occupancy sensor and low-voltage switch (dimmed or bi-level control depending on fixture type). Each fixture type within the room shall be under a single lighting zone.</p> <p>Window blinds may be manually operated, unless automatic control is required by energy management system or building design.</p>
LC7	<p>Residential: Lighting layers shall include, at a minimum, general room lighting.</p> <p>All fixtures in Buildings that include Housing Areas, with the exception of Bedroom and Apartment Areas shall, be controlled via low-voltage switch (dimmed or bi-level control depending on fixture type). Fixtures in Bedroom and Apartment Areas may be controlled by low voltage or line voltage switches. Each fixture type within the room shall be under a single lighting zone. Room key controllers may not be used.</p> <p>Window blinds shall be manually operated.</p>
LC8	<p>Public Space: Lighting layers shall include room settings for all planned room uses. Systems shall accommodate, at a minimum: general room lighting and any functional lighting required for space use. Functional lighting includes countertop lighting, lounge lighting, etc.</p> <p>All fixtures to be controlled via central BMS control. Occupancy sensor may be used for staged lighting reduction where appropriate, provided minimum security and emergency light levels are maintained.</p> <p>Each fixture type within the room shall be under a single lighting zone. Areas shall be zoned to separate daylight areas from non daylight areas, and to match planned usage.</p> <p>Window blinds, if used, shall be automatically operated via central BMS control.</p>

Table 3.8.6.4.2: Lighting Control

Provide an addressable lighting control system that interconnects and networks standalone lighting components such as electronic dimming or non-dimming ballasts, photocell and occupancy sensors, and analog lighting controls to provide a complete digital control system. The control system is layered on top of these standard lighting components to integrate this equipment into a single network control system. Addressable lighting control is not required for Bedroom or Apartment Areas.

The system shall consist of host computer, networking control servers as required, addressable digital ballasts, low-voltage dimming and switching stations, occupancy sensors, photocell sensors, and interconnecting communication cables to all the control devices. The system shall include the following control options:

- (a) Pre-programmed on/off control at selected times.
- (b) Override on/off/dim control via local low-voltage switches.

- (c) Selective override on/off/dim control or change of time from host computer.
- (d) Automatic daylight harvesting in areas where photocells are present.
- (e) Automatic/Manual on and automatic/manual off via occupancy sensor/vacancy and low voltage switch.
- (f) Low-voltage switches shall have the capability to control lighting and window shades.
- (g) Integration to the BMS via BACnet.
- (h) Energy monitoring outputs for display.

3.8.6.4.3 Interface:

- (a) The control system shall offer two, separate levels of PC interface:
 - (i) Personal lighting control for the average building occupant to control and adjust basic lighting functions in their workspace;
 - (ii) Central energy control for the lighting administrator to perform energy management, configuration maintenance, monitoring operations, and to provide support to Building occupants; and
 - (iii) In both cases, there shall be a Windows graphic user interface.
- (b) In a photocell sensor equipped system, the control system shall rationalize changes to light levels when ambient (natural) light is available and shall maintain a steady light level when subjected to fluctuating ambient conditions. The control system shall utilize light level inputs from common and/or remote sensor locations to minimize the number of photo sensors required. The control system shall operate with multiple users in harmony and not react adversely to manual override inputs. Daylight harvesting shall not impede personal lighting control and the ability to adjust light levels on a per fixture basis.
- (c) The control system shall be programmable for scheduling lights “on” or “off” via the system software interface, to include:
 - (i) Override: Manual adjustments and occupancy sensor detection shall temporarily override off status imposed by time clock schedule;

- (ii) Response to Power Failure: In the event of a power failure, the time clock shall execute schedules that would still be in progress had they begun during the power outage; and
 - (iii) Flick Warning: Five minutes prior to a scheduled lights “off” event or expiry of a temporary override, the system shall provide two short light level drops as a warning to the affected occupants.
- (d) I/O modules shall be centrally addressable, on a per fixture basis, through the system software. To simplify installation and maintenance, the control system shall not require manual recording of addresses for commissioning or reconfiguration.
 - (e) There shall be a mode, when activated through the system, that will immediately adjust lights to full light output and retain that level until the mode is deactivated. This setting shall override all other inputs. The control system shall interface with the building emergency monitoring system at a convenient point and not require multiple connections.
 - (f) Maximum light level programmability shall be available by individual fixture.
 - (g) The control system shall provide two states when occupancy status is vacant as per occupancy sensors, which are either lights turn “off” or lights adjust to configurable light level.
 - (h) The control system shall not isolate occupants by turning “off” lights that are still required for convenience and safety, such as a hallway path to exit the premises.
 - (i) The control system shall operate independently of building’s network infrastructure and shall not rely on users supplied PCs for operation. Network infrastructure shall only be utilized for personal control software. Manufacturer must provide software to facilitate communications. Manufacturer shall provide connection from the PC running energy management and lighting control software to the system communication bus.
 - (j) Control systems firewall technology shall maintain network security.
 - (k) An automatic load shedding mode shall be available where, when activated through the system, the control unit will reduce its output to a programmable maximum electrical demand load. The control system shall not shed more load than required and load shedding priority shall be centrally configurable by light

fixture. The individual user shall retain the ability to override system light levels.

- (l) Wiring shall be topology independent and not require splicing or termination. Prefabricated, quick connecting wiring shall be utilized. The maximum connected length of wiring shall be no less than 1,400 feet per channel.
- (m) The control system shall not permit dimming of new lamps prior to completion of manufacturer recommended 100 hour accumulated operation at full brightness.
- (n) The assignment of individual fixtures to zones shall be centrally configurable by system software such that physical rewiring will not be necessary when workspace reconfiguration is performed. Removal of covers, faceplates, ceiling tiles, etc. shall not be required.

3.8.6.4.4 System software:

(a) Central control software:

- (i) The central control software is used to commission, configure and manage the lighting control system. It enables configuration of every system parameter in the building for each individual user or space and establishes the baseline settings for the following features:
 - (1) Daylight harvesting.
 - (2) Occupancy control.
 - (3) Time scheduling.
 - (4) Task tuning.
 - (5) Personal control.
 - (6) Load shedding.
- (ii) The central control software utilizes a floor plan bases interface that permits a user to easily navigate between zones and floors of a building with zoom “in and zoom “out” capabilities. Navigation throughout building can also be done via a zone tree with each zone being labeled according to its use and location.
- (iii) Advanced system features such as creation of zone hierarchies, overlapping and support zone definitions, user access rights, timeout settings for occupancy sensors,

calibration of light levels for daylight harvesting and the settings of multiple configured time schedule profiles are controlled through this software.

- (iv) Time scheduling of a control zone is configured through easy to use interface.
 - (v) The central control software also features a mapping interface which enables convenient “drag and drop” mapping (addressing) of all hardware devices connected to the system such as lighting fixtures, sensors, relays, etc. Mapping links the physical location of a device to a defined zone and associated lighting functionality.
 - (vi) No pre-assigned addresses are required upon installation of hardware devices.
- (b) Personal control software:
- (i) The personal control software enables individuals in the building to control lighting levels in their workspace for their own desktop PC. The users access the software via an icon on their desktop and can control individual fixtures or groups of fixtures within their space.
 - (ii) Preset lighting scenes may be stored, recalled and modified from this application to suit the individual’s personal preferences or task at hand.
 - (iii) The personal control software can be used to control light levels in larger spaces such as conference rooms, open office areas, auditoriums, etc.
 - (iv) In addition to dimming functionality, the software can be used to simply turn individual fixtures “on” or “off” within that same workspace.
 - (v) Users can only control light fixtures assigned to their workspace according to the configuration of the system.
 - (vi) Communication with the lighting control system equipment is established through a connection to a LAN system.
- (c) Wall controllers:
- (i) The controllers are configurable wall mounted devices that provide local on/off or dimming control over lighting zones.
 - (ii) Controllers are low-voltage and connect to the control system communication network via two RJ45 connectors.

- (iii) Each device can be set-up and modified through the control systems software interface.
- (d) Zone controller:
 - (i) Software configurable controller that provides “on/off” switching for up to three lighting zones, used to “activate” or “de-activate” a lighting zone.
 - (ii) The zone status is indicated by an LED display with yellow indicating “on” and blue indicating “off.”
 - (iii) Where lighting zones are controlled by a time schedule (rather than by occupancy sensors) the controller also allows manual override of the time schedule by simply “re-activating” the zone about to be shutoff, for a programmable override period.
- (e) Dimming scene controller:
 - (i) Three scene, single zone dimming controller that provides customized light level control in enclosed offices, conference rooms or other areas requiring dimming control.
 - (ii) The dimming controller enables manual dimming of light levels or the recall of customized preset lighting “scenes” by pushbutton control.
 - (iii) Scene configuration can be changed either directly on the controller or via control systems software.
 - (iv) The dimming controller also has a custom labeling feature that allows scene labels on the controller to be easily modified.
- (f) Single zone dimming controller:
 - (i) Single zone dimming controller that provides local “on/off” and dimming control for enclosed offices or other smaller spaces, where multi-zone control is not required.
 - (ii) Controller has the Decora style rocker switch look. A short press of the upper or lower buttons turns lights “on” or “off,” while a “press and hold” dims lighting up or down.
 - (iii) The zone status is indicated by an LED with yellow indicating “on” and blue indicating “off.”
 - (iv) Where lighting zones are controlled by a time schedule (rather than by occupancy sensors) the controller also

allows for manual override of the time schedule by the press of the upper button, which “re-activates” the zone about to be shutoff, for a programmable override period.

- (v) Controller also features an occupancy sensor interface for use with low-voltage sensors. A connection to the controller can be made directly from the sensor, thereby eliminating the need for an I/O module at the sensor.
- (g) Single zone time delay controller:
 - (i) Single zone time delay controller that provides local “on/off” control for spaces difficult to cover with occupancy sensors such as mechanical, electrical, telecommunication, server and storage rooms, or where frequency of use is minimal.
 - (ii) Controller has the Decora style rocker switch look. A single or double or triple press of the upper button provides lighting for 10 or 20 or 30 minutes respectively. An audible signal confirms the selected time period (i.e. one or two or three beeps for 10 or 20 or 30 minutes respectively).
 - (iii) A warning signal prior to shutoff can be provided by a decreasing pause between beeps.
- (h) I/O modules:
 - (i) The universal I/O module provides an interface between lighting components such as ballasts, contact closures, occupancy sensors and photocell sensors to the system communication network.
 - (ii) The I/O module automatically detects and addresses the type of device to which it is wired and establishes two-way communication between the ECU and itself. Individually addressable, the I/O module enables each lighting component to be independently controlled and configured.
 - (iii) When connected to a fixture ballast, the I/O module can switch a fixture “on” or “off” via a relay contained in the module as well as deliver a low-voltage dimming signal to any conventional 0-10V dimming ballast.
 - (iv) When connected to an occupancy sensor or photocell sensor, the I/O module provides power to operate the device and relays sensor information from the device to the ECU. The I/O module can also be connected to power relays or switch packs to enable switching of larger electrical loads.

- (v) In the event of a power failure, I/O modules connected to light fixtures shall default to the “on” state at full light output.
- (i) Controller:
 - (i) The controller is a lighting control device that collects, processes and distributes lighting control data to and from the I/O modules, zone controllers and scene controllers, over the systems communication network.
 - (ii) Each controller has six (6) communication channels and each channel can control up to 75 nodes per channel, for a total of 450 nodes per ECU.
 - (iii) The controller is the central intelligence point for the area that it controls, collecting signal information from sensors, zone controllers, scene controllers and personal control software and determining appropriate brightness levels of on/off status for each lighting fixture or zone.
 - (iv) Each controller has an Ethernet connection for communication with buildings local area network “LAN” to enable desktop personal control.
- (j) Support server:
 - (i) Database server for all data related to the control system. It shall store all system settings and parameters, including attributes for zones, lighting fixtures, sensors, zone controllers and scene controllers. Additionally, it maintains multiple set-points, including those for light levels, time schedules, occupancy sensor timeouts and demand response of load shedding features.
 - (ii) The server logs historical data regarding the system’s operational and energy saving results.
 - (iii) The server provides the ability to remotely access a system in order to change system settings or configuration, analyze system performance or energy data or troubleshoot.
 - (iv) The server hosts the web interface required for web enabled Personal Control Software. In addition, optional building automation system interfaces such as BACnet and Lonworks are available.
- (k) Relay panel:
 - (i) Addressable relay panel that fully integrates with the addressable control system, consisting of individual relays,

control module, power supplies, network connection interface, DIN rail supports and cabinet.

- (ii) Cabinet: NEMA 1 enclosure sized to accept up to 24 relays. Enclosure shall be 19" high x 18" wide x 4" deep minimum.
 - (iii) Cover: Standard surface mount, hinged, lockable cover with windows for viewing relay status indicators. A wiring schedule directory card shall be affixed to the rear of the cover.
 - (iv) Interior: DIN rail supports for relays and circuit board back control module pre-wired to relays. Each relay can be addressed as individual zone or as part of a larger zone and is controlled through the software.
 - (v) Control relays: Heavy-duty momentary pulsed mechanically latching contactors. Operating voltage is 24VAC; contacts are rated at 20 amps at 120 or 277VAC. They shall attach to the interior DIN rail support and pre-wire to circuit board.
 - (vi) Network connection: Two RJ45 ports.
- (l) Occupancy sensor:
- (i) Occupancy sensors shall comply with the latest edition of the California Building Energy Efficiency Standards, California Building Code, Part 6 and be certified by The California Energy Commission. All sensors shall be listed in the most current directory of Certified Occupancy Sensing Devices or be on file with the CEC.
 - (ii) Occupancy sensors shall be dual-technology type infrared/ultrasonic.
 - (iii) All sensors shall have an adjustable time delay for turning off lights and a sensitivity adjustment.
 - (iv) All sensors shall be ceiling mounted and shall operate at low-voltage, maximum 24VDC input, 40mA current draw. Sensors shall be powered via the Encelium system, so there is no need for power supplies.
- (m) Ceiling mounted single-directional sensors:
- (i) Sensor shall have a minimum coverage of up to 900 square feet.
 - (ii) Operation shall be automatic "ON" and automatic "OFF".

- (iii) Time delay adjustment from 30 seconds to 30 minutes. Set adjustment at 10 minutes. Set sensitivity adjustment at maximum.
- (iv) For use in small office areas.
- (n) Photocell sensor:
 - (i) Specifications: The sensor shall measure light from any source in the visible spectrum within at least a 60° cone. It shall measure light between 0 and minimum 75 foot-candles.

3.8.7 Fire Protection and Life Safety Systems

3.8.7.1 Fire Sprinkler Systems

Developer shall design, construct and install a fire sprinkler system that includes, at a minimum, a complete hydraulically calculated automatic wet pipe sprinkler system for entire buildings, in accordance with NFPA 13 and California Fire Code. The system shall also include all necessary special or enhanced fire suppression systems as required to address specific fire protection needs in accordance with the following as indicated on the Area Data Sheets.

Fire Protection	
FP1	Base Building Wet Sprinkler System
FP2	Dry Preaction Wet Sprinkler System
FP3	Base Building wet sprinkler system w/high temperature activation
FP4	Waterless Fire Suppression (FM 200)
FP5	AFFF Foam Fire Suppression
FP6	Wet Chemical Extinguishing System

Table 3.8.7.1: Fire Protection

3.8.7.1.1 Specific Fire Sprinkler Requirements

- (a) Provide Combined Class 1 standpipes and fire sprinkler risers: fire department outlets shall be provided with locking Knox caps in areas accessible to the public as required by the Designated Campus Fire Marshal.
- (b) Coordinate with the overall architectural design to ensure sprinkler head layout addresses interferences and or obstructions requiring special protection, additional piping and heads, or drains. Sprinkler heads shall be placed, as far as possible, within the architectural grid or pattern of the design, and coordinate with the overall architecture of all spaces. Sprinklers shall be symmetrically placed, centered in ceiling tiles, and equidistant between lights, diffusers, and other elements. Sprinklers may be spaced closer than the

maximum spacing allowed so that symmetry and even spacing are achieved.

- (c) The maximum permissible flow velocity through automatic sprinkler piping shall be 15.0 feet per second. The minimum starting pressure at the most remote sprinkler head shall be not less than 7 psi.
- (d) Use of piping lighter than schedule 10 pipe is not allowed by the Owner.
- (e) Design system for earthquake protection in required seismic zone.
- (f) Provide fire department hose inlet and roof outlet connections as required.
- (g) Provide all electrical signaling and alarm devices installed on the piping system shall be furnished under this section and connected to the Fire Alarm System under the Electrical Division on electrical work.
- (h) Paint all exposed fire sprinkler piping to match wall/ceiling paint color.
- (i) Coordinate routing of sprinkler piping with the other trades for the Project. Main piping runs shall be organized within utility zones where possible to ensure ease of access, renovation or alteration.
- (j) Identify valves and label piping in accordance with NFPA 13 and UCM Campus standards. Install stickers applied to the fire sprinkler piping indicating the direction of flow. Typically this is a sticker that says "Sprinkler" with an arrow.
- (k) Valves in the ceiling or interstitial space shall be located so they are easily accessible by ladder without removing the ceiling grid to access the valves.
- (l) Design shall comply with the Owner's Insurance Underwriters' requirements.
- (m) Installation of the sprinkler system shall not be started until complete plans and specifications including water supply information have been reviewed by the Designated Campus Fire Marshal. At various stages and upon completion, the system must be tested in the presence of the Designated Campus Fire Marshal.
- (n) Fire Pump Test Loop: All fire pumps shall be provided with a test loop such that it can be tested without flowing water (a water conservation measure). A test header does still need to be provided as flowing water is still required every 3 years.

3.8.7.1.2 Sprinkler Heads

Developer shall:

- (a) Provide high temperature sprinkler heads in all electrical rooms or other areas with elevated temperatures such as mechanical rooms. Avoid running sprinklers and piping over electrical equipment and electrical panels.
- (b) Provide recessed sprinkler heads in all residential rooms, shower and locker rooms. Semi-recessed sprinkler heads are not permitted.
- (c) Provide sprinkler head protection for all heads at exposed ceilings or in areas where heads may be vulnerable to impact from activities in the area below.
- (d) Provide stainless steel or other corrosion resistant heads in all high humidity areas, such as shower rooms and locker rooms and in concealed locations.
- (e) Provide upright type sprinklers for exposed piping, or pendent type heads for concealed piping.
- (f) Sidewall Locations: Where required and where approved by the Designated Campus Fire Marshal. Sidewall sprinklers are desired for exterior protection to avoid the use of exposed pipe and the requirement for freeze protection.
- (g) Finished Ceilings: Located at all ceilings with lay in acoustical tile ceiling and at plaster or gypsum board type ceilings; Semi recessed sprinkler.
- (h) Ceilings in exterior of Building: Provide sidewall fire sprinkler heads and escutcheons to match ceiling color.
- (i) Where fire sprinkler heads are located in rooms with surfaced mounted lights, provide 2 piece adjustable sprinkler escutcheon, with adjustment from 1-7/8 inches to 3-1/8 inches below finished ceilings. Fire sprinkler drop nipple shall be mounted 2-1/4 inches below the finished ceiling surface.

3.8.7.1.3 Fire Protection Specialties

- (a) Install drains on main rises and auxiliary drains at all low points in the system. Drains shall be plumbed to the exterior at a location approved by the Designated Campus Fire Marshal.
- (b) One Inspector's test drain shall be installed for each sprinkler system. Drains and Inspector's tests shall be at locations approved

by Designated Campus Fire Marshal. Inspectors test drains shall be located at a remote location from the riser to facilitate removal of air from the system.

- (c) Provide drain line to sanitary sewer standpipe and P-trap assembly. Drain valves shall be of the angle type. Main drains are to be run into the sanitary sewer, not all drains. The drain shall be sized to accommodate the full flow of the main drain.
- (d) Pipe drain valves to a floor sink or to the other receptors. Discharge shall be visible from sight drain fittings or open end drain pipe. Provide flushing connections at ends of all cross mains. Inspectors test valves and main drains shall not be run into floor sinks. Auxiliary drains may be run into floor sinks, but not drains requiring flow tests such as main drains and inspector's test valves.
- (e) Freeze protection must be provided for all exterior pipes and any pipe that is located in exterior soffits or spaces that do not insulate the sprinkler pipe from freezing.
- (f) Combined standpipe systems (Class I Standpipes combined with a wet fire sprinkler riser): The 2 ½" fire department outlets that are accessible to the public shall be provided with Knox caps.
- (g) Fire sprinkler risers shall not be located in custodial spaces or storage rooms.

3.8.7.2 Fire Protection and Life Safety Alarm System

3.8.7.2.1 Fire Protection and Life Safety Systems Components

Developer shall design, construct and implement a fire protection and life safety system (a "**Fire Alarm System**") that includes, at a minimum, the following components:

- (a) fire alarm control panel;
- (b) initiating devices;
- (c) fire alarm notification devices;
- (d) mass notification devices;
- (e) remote digital voice panel (RDVP);
- (f) fireman's remote annunciator panel (FRAP); and
- (g) fire alarm auxiliary equipment control.

3.8.7.3 Systems with Connections to the Fire Alarm System

The following systems, at a minimum, shall be connected to the Fire Alarm System:

- (a) Automatic extinguishing systems alarm system flow switches, valve monitors and post indicating valves;
- (b) elevator controllers for recall;
- (c) door hold-open/closure devices without integral smoke detectors;
- (d) fire barrier roll-down and shutters;
- (e) fire/smoke dampers;
- (f) fire pump controller to monitor status;
- (g) duct mounted smoke detectors and programmable relays;
- (h) Gas detection systems or any hazardous materials monitoring systems; and
- (i) Flow alarms to emergency showers.

3.8.7.4 General Requirements

- (a) The Fire Alarm System shall be a zoned, non-coded, addressable with voice evacuation network operating at 24 volts DC on a closed circuit that is electronically supervised. Fire alarm shall be a Class B for initiating device circuits, Style 4 for signaling line circuits, and Style 17 for Network Signaling Line Circuits, Class B Style Y for notification device circuits. Fiber backbones shall be daisy chained in a loop to surrounding buildings and shall not be homerun to IT center. All connections shall be labeled.
- (b) Developer shall connect such Fire Alarm System to the Existing Campus' Fire Alarm System located in the Central Plant. The Infrastructure shall include media fiber optic cabling and twisted pair to monitor and have voice communication. Backbone requirements for the Fire Alarm System shall be a minimum of 62.5 micron multimode cabling, as required by the Designated Campus Fire Marshal. Terminate such cabling adjacent to the fire alarm panel. This connection shall require a continuous cable, meaning no patch panels and patch cords shall be permitted along its run. Fusion splicing is required. Only Fire Alarm can report on this network.
- (c) The Facilities shall include a Fire Alarm System that includes an audible notification system that is compliant with a mass

notification system. Such audible notification system may be speaker devices.

- (d) The mass notification system shall include a visual method for the hearing impaired.
- (e) The mass notifications and audible notifications shall be able to be originated locally (at each Building or Facility) and at Campus Police.
- (f) The Project shall incorporate a mass notification system that works in conjunction with the fire alarm audible notification system.
- (g) Audible levels shall be design for speech intelligibility.
- (h) The system shall require an amber strobe in addition to a white fire alarm strobe. Speaker, amber strobe and white strobe may all be incorporated into one device.
- (i) White strobe fire alarm shall not be permitted within egress stairwells.
- (j) An amber strobe fire alarm shall be installed at every stairwell entrance and exit.
- (k) Activation of detectors in elevators lobbies, elevators shaft, elevator equipment or control room shall cause elevators to be recalled to the ground floor or alternate floor approved by the Designated Campus Fire Marshal if ground floor detector alarm has been activated.
- (l) All features of the Fire Alarm System and Mass Notification System shall be compatible with the Fire Alarm System currently utilized in the Existing Campus, including firmware, network cards, etc.
- (m) All features of the Fire Alarm System and Mass Notification System shall be compatible with the Fire Alarm System currently utilized in the Existing Campus, including firmware, network cards, etc.
- (n) The following shall be a supervisory signal: duct detection, fire pump running
- (o) An annunciator panel shall be located at every building entrance. The location shall be approved by the Designated Campus Fire Marshal.
- (p) Fire Alarm Control Panels shall not be located in IDF or BDF rooms.

3.8.8 Mass Notification Requirements

3.8.8.1 General Requirements

The Mass Notification System shall include the following:

- (a) The system shall be capable of the reproduction of prerecorded, synthesized, and live messages with voice intelligibility from two (2) locations; within each building and from Campus Dispatch. Two-way communications systems are not required.
- (b) The system shall provide Layer 1 (in-building emergency communication system) and Layer 2 (wide area MNS) in accordance with NFPA 72, including the ability to send digital and voice messages through the landline telephone system, and the ability to send visual and textual messages to monitors located in Academic Areas, public areas within all Facilities that include such monitors, and other Areas as identified in any risk assessment performed by Developer.
- (c) The system design shall be based on a risk analysis and assessment by a third party in collaboration with the Designated Campus Fire Marshal and Public Safety with consideration of each building's use and risks, as well as any exterior spaces such as parking lots, outdoor assembly areas, etc. Prior to system design, the Risk Analysis must be reviewed and approved by the Designated Campus Fire Marshal and Public Safety.
- (d) The system shall provide seamless, integrated operation from Campus Dispatch with the capabilities of issuing an individual building message or simultaneously delivering a campus-wide message (Layer 1 and Layer 2 simultaneously) for the existing and new portions of the campus.
- (e) The MNS shall be compatible with existing equipment in Central Plant and Campus Dispatch.
- (f) The removal of existing wide area MNS Blue Lights must be approved by the Designated Campus Fire Marshal and Public Safety.
- (g) The Designated Campus Fire Marshal shall approve the sequence of operation for the MNS prior to final design.
- (h) The system shall be integrated with any developer provided PA or other sound reinforcement system in such a manner that it can over-ride or mute audio signals. The system shall also provide input feed for any Owner-provided PA or sound reinforcement system.

3.8.8.2 Area Data Sheet Requirements

Developer shall design and build the Facilities to include the following public address systems as indicated in the Area Data Sheets:

Mass Notification	
PA1	General Public: Provide a public address system which shall be designed to be heard clearly in all areas of the Facility. System shall include input and mixer rack, amplifier, distribution wiring and speakers. All exposed elements shall be weatherproof. Input devices (microphones, music decks, etc., are owner provided). Input location shall be coordinated with the overall design and the Owner.
PA2	General Public and Starter System: Provide a public address system which shall be designed to be heard clearly in all areas of the Facility. System shall include input and mixer rack, amplifier, distribution wiring and speakers. All exposed elements shall be weatherproof. Input devices (microphones, music decks, etc., are owner provided). Input location shall be coordinated with the overall design and the Owner. Starter PA System: Provide a starter PA system separate from the general public address system. Starter PA system shall be designed specifically to provide clear and simultaneous instructions at each of the starting platforms.
PA3	None

Table 3.8.8.2: Mass Notification

3.8.9 Security Systems and Infrastructure

Developer shall, in accordance with the requirements of this Section 3.8.9, design and construct a layered security system and associated infrastructure to adequately support the needs of the Project (the “**Security Systems**”).

3.8.9.1 Specific Area Data Sheet Requirements

Developer shall provide the following as indicated in the Area Data Sheets:

Security	
SC1	Intrusion resistant construction: Partitions: CMU or metal stud with expanded metal mesh under gypsum board. Solid core metal door with S&G mechanical combination type locks. Partitions run floor to floor. Protect all openings over 1 sq ft with bars. Floor and ceiling: concrete or metal deck with concrete fill
SC2	Intrusion & Personnel protection construction: Partitions: CMU or metal stud with expanded metal mesh and ballistic resistant shielding under gypsum board. Ballistic rated solid core metal door with S&G mechanical combination type locks. Ballistic rated interior and exterior glazing, including transaction windows. Partitions run floor to floor. Floor and ceiling: concrete or metal deck with concrete fill

Table 3.8.9.1: Security

3.8.9.2 Access Control and Alarm Monitoring Systems (ACAMS)

- (a) Developer shall develop and implement a Security System that utilizes an ACAMS platform that utilizes the same software versions being currently utilized in the Existing Campus.
- (b) The ACAMS platform currently utilized in the Existing Campus is CBORD, with a host server running CS Access in the Existing Campus' telecommunications building. The local ACAMS controller for each building within the Existing Campus communicates with the host server via the building's LAN/WAN.

3.8.9.3 ACAMS Controllers and Power Supplies

The ACAMS field devices shall communicate to local, wall-mounted controllers. The local ACAMS controllers for each building shall reside in the Building's BDF/IDF room. The ACAMS controllers, equipment enclosures, and power supplies typically require five (5) feet of wall space with two (2) feet of clearance.

3.8.9.4 Card Access and Monitored Doors

- (a) Access-controlled doors shall incorporate the use of proximity card readers, recessed door contacts in the header or top mullion, request-to-exit sensors, and electronic locking hardware.
- (b) The following locations require monitoring through the access control system:
 - (i) Knox Boxes;
 - (ii) emergency/exit only doors; and
 - (iii) loading dock doors and gates.
- (c) All secondary, non-celebrated perimeter entrances shall require remote locking and unlocking functions.

3.8.9.5 Duress Buttons

Duress alarm shall be located at areas as noted in the Area Data Sheets.

3.8.9.6 Doors and Hardware

- (a) All exterior doors shall conform to the following ADA interface requirements:
 - (i) Developer shall strive to provide access to Users with disabilities, and as such, shall implement measures beyond the minimum requirements set forth by applicable Law.

- (ii) Auto-operators shall be required at all major entries to each Building.
 - (iii) Auto-operators shall be furnished with three-position rocker switches: on / off / hold open.
 - (iv) Interlock the power assist's push plate actuators with the ACAMS platform when access control is required such that interior push plates unlock the door before swinging the door open. Exterior push plate actuators shall not trigger the operator unless the door is in an unlocked state.
 - (v) Developer may elect to use automatic sliding doors with motions sensors, instead of push plate actuators. The automatic sliding doors' locking mechanism and motion sensors shall interface with the ACAMS platform.
- (b) Mechanical Override:
- (i) ACAMS electronic locks shall have a manual override feature that allows for access in the event of ACAMS downtime due to extended power outages or other system failures.
 - (ii) Card reader doors must be keyed to the Owner's master key system. Only a high level master shall have the capability to unlock card reader doors.
 - (iii) All doors shall have mechanical lock mechanisms, unless doors are exit only portals where no exterior trim exists.
 - (iv) Locked doors must be keyed to the Owner's master key system.
- (c) Rated Doors and Frames:
- (i) Install factory prepared fire rated assemblies for security devices by the manufacturer prior to installation. Factory-prepared doors shall be ready for electrified locks via a transfer hinge and a factory-prepped cored chase for wiring to the lock. No modifications to door or frame shall be allowed.
 - (ii) The color of security devices on walls and ceilings shall be coordinated to best match the mounting surface finish. Devices shall not stand out. This applies to security field devices such as card readers, request-to-exit sensors, contacts, glass break sensors, and camera housings.

3.8.9.7 Video Surveillance System

3.8.9.7.1 Developer shall procure and install video monitoring in accordance with the Area Data Sheets to provide comprehensive video surveillance using a maximum of 350 video surveillance cameras. The locations and positioning of the video surveillance cameras shall be determined in consultation with the Owner during the design review process.

3.8.9.7.2 Video Management System (VMS)

- (a) Local IP-based network cameras shall communicate with the rack-mounted Network Video Recorder (NVR) server(s) located at the TCOMM facility.
- (b) All new cameras shall be compatible with a Pelco Endura system, currently utilized within the Existing Campus.
- (c) All installed NVRs shall allow for 25% VMS growth for future camera connections.
- (d) NVRs shall be programmed to record at 15 frames per second at 4CIF using H.264 compression.
- (e) Provide (2) wall mounted CCTV monitors with 46-inch LCD flat panel displays and 1920 x 1080p full HD resolution in the Campus Operations: Public Safety Area.
- (f) Developer shall coordinate with the Owner for additional rack space within the Existing TCOMM facility.
- (g) PoE switches/ports required for video surveillance system cameras shall require coordination with the Owner's Information Technology Department.
- (h) Video storage of 30 days shall be required for all new cameras installed within the Project Site, based on continuous (24-hour, 7 days a week) recording in compliance with the requirements set forth in this Section.

3.8.9.7.3 CCTV Cameras

- (a) Refer to Section 3.8.10.7.3 (Horizontal Cabling) for horizontal cabling requirements for IP Cameras.
- (b) Developer shall coordinate with the Campus Police for the locations and mounting options for all cameras.
- (c) All new CCTV cameras shall have a minimum of three (3)-megapixel, high definition quality color cameras with zoom capability. Use of 180/360 degree cameras is acceptable.

- (d) Pan/tilt/zoom cameras shall be required in high occupancy areas.
- (e) All cameras shall be suitable for low light environments augmented by ambient lighting. For locations that have low ambient light or no ambient lighting, cameras shall have integrated infrared lighting.
- (f) All new cameras shall be IP based.

3.8.9.7.4 Security Communication System

- (a) Developer shall install a communication device system that connects to the Owner's PBX system for dial-up connection in accordance with Section 3.4.5.7 (Duress Alarm System) of these Technical Requirements.

3.8.9.8 Emergency Responder Radio Coverage (ERRC)/Bi Directional Amplifiers (BDA)/Distributed Antenna System (DAS)

- (a) Developer shall provide emergency responder radio coverage (ERRC) for all Facilities in accordance with California Fire Code (CFC) section 510. For Buildings over two stories in height, the ERRC shall be provided by installation of an amplified distributed antenna system, bi directional amplifier, or other acceptable signal amplification technology approved by code or by the Designated Campus Fire Marshal.
- (b) For one and two story Buildings, ERRC shall be assumed to be adequate without amplification or distributed antennas, and Developer shall not be required to install active ERRC systems in such Buildings. Should active ERRC systems be required by the CBC or the Designated Campus Fire Marshal, Developer will not be responsible for the cost of providing the ERRC systems.
- (c) For one and two story Buildings, Developer shall undertake a preliminary signal attenuation assessment, based on planned construction materials and methods. Where an active ERRC system is deemed likely, Developer shall work with Owner to incorporate necessary Infrastructure to accommodate the ERRC prior to construction.

3.8.10 Information Technology (IT) System

3.8.10.1 Existing Conditions and General Requirements

- (a) The Owner's information technology department provides telephone, data, and CATV systems throughout the Existing Campus to Users. A primary main distribution facility located at the north end of the Existing Campus (the "**Existing TCOMM Facility**") serves as the core network interface between UC Merced and outside service providers.

- (b) The IT infrastructure within the Existing Campus consists of two (2) "loops" that encircle the Existing Campus. Each building within the Existing Campus is serviced with two underground pathway service entrances for redundancy purposes.
- (c) The Existing Campus Network (General) and the Existing RedNet Network connect the Existing TCOMM Facility to each building on the Existing Campus at their respective building distribution frame (BDF) room which serves as the building entrance facility. Each BDF connects to the internal building intermediate distribution frame (IDF) rooms with fiber, copper, and coaxial connectivity.
- (d) Currently, there are several distributed server rooms within the Existing Campus that connect back to each local BDF room. These server rooms are in support of independent faculty/student research and computational systems.
- (e) Developer shall connect the Facilities to the Existing Campus with new underground pathways, install new backbone fiber and copper cabling throughout the Project Site and provide internal distribution cabling Infrastructure for each Building.
- (f) Developer shall construct IT specific spaces in each Building including BDF rooms and IDF rooms (collectively, the "IT Rooms").
- (g) A Gigabyte Passive Network (GPON) system shall not be permitted.

3.8.10.2 Network Expansion Design Requirements

Developer shall design and construct expansions to both of the Existing Campus Network (General) and the Existing RedNet Network in accordance with Appendix 16 (IT Network Diagram) of these Technical Requirements.

3.8.10.3 Network Expansion Design Restrictions

Developer shall design and construct the expansion of the Existing RedNet Network as a physically separate, secure network which shall not connect at any point to the Existing Campus Network (General) or to the expansion of the Existing Campus Network (General). The use of configured, virtual circuits shall not be allowed for any RedNet Network designated system.

3.8.10.4 Developer and Owner Responsibilities for IT

Appendix 17 (IT Responsibility Matrix) of the Technical Requirements identifies Developer and Owner responsibilities for certain IT systems and devices. Developer shall procure, install and commission and maintain those systems and devices identified in Appendix 17 as being the responsibility of Developer, together with all related components and attachments to ensure proper functioning of such systems and devices.

3.8.10.5 General IT Rooms

3.8.10.5.1 General Requirements

- (a) Each Building shall have a centrally located BDF room. The BDF room shall receive voice, data, and CATV connectivity services from the Existing TCOMM Facility. Each BDF room shall house the Building's core backbone network.
- (b) All entrance Building components shall be located within the BDF room including redundant entrance conduits and backbone fiber terminations, lightning protection blocks for copper cabling, and CATV connections. An entrance Building room separate from the BDF room is not required.
- (c) Each floor within each Building shall contain an IDF room. Vertical backbone cabling shall be provided for telephone, data, and CATV/MATV systems running between each Building's BDF room and each IDF room within such Building. Telephone termination frames, voice and data patch panels, and equipment racks/cabinets shall be provided and installed at the BDF room, and at each IDF room. Plenum-rated horizontal distribution cables shall be provided for telephone, data, and CATV systems from each outlet for telephone, data and CATV to the nearest IDF room. The IDF room shall house the network equipment for station data, voice, and CATV services provided and installed by Owner.

3.8.10.5.2 IT Rooms Location Requirements

- (a) BDF and IDF rooms shall be vertically stacked, wherever possible. At a minimum, one vertical wall must be common for each closet stack to facilitate the riser path. Load carrying structural walls that could interfere with a direct vertical path shall not be utilized.
- (b) BDF rooms and server rooms shall not be located below grade in any instance. IDF rooms may be located below water level provided preventive measures against water infiltration are employed. Provide a drain and/or sump pump within the IDF room, as well as a water detection system, if the risk of water ingress or infiltration exists.
- (c) The BDF and IDF rooms shall be located such that the maximum distance between an IDF room and the farthest tele/data device shall be no more than two hundred fifty (250) feet, not accounting for horizontal routing and vertical direction changes. Non-stacking closets are not permitted in any design without prior approval from Owner.
- (d) From any given IDF room, the average horizontal run shall be one hundred fifty (150) feet, but no individual cable run shall exceed

two hundred ninety-five (295) feet accounting for horizontal and vertical direction changes. Such cable runs shall consist of solid-core permanent wiring, two connectors and two stranded patch cables of sixteen (16) feet, one at each end. In the event such distance is exceeded, an additional IDF room shall be required.

- (e) BDF and IDF rooms shall not be located:
 - (i) in spaces with limited potential for future expansion, including between stairwells, shafts, elevators, steel bracing, and exterior walls;
 - (ii) where they may be subject to water or steam infiltration, humidity from nearby water or steam, heat, or any other corrosive atmospheric or environmental conditions;
 - (iii) under a water source such as restroom or janitorial closet;
 - (iv) adjacent to elevators, pump motors, generators, x-ray equipment, radio transmitters, radar transmitters, induction heating devices, sources of mechanical vibration, and other potential sources of electromagnetic interference (EMI); and
 - (v) with or adjacent to Areas which uses are reserved for functions including: electrical closets, boiler rooms, washrooms, janitorial closets, and storage rooms.
- (f) The IT Rooms shall be dedicated to the Building's telecommunications function and related supporting Infrastructure only. Provide access to the IT Rooms directly from common areas such as corridors. Ensure that access is not designed through classrooms, offices, mechanical and electrical rooms, or other similar spaces.
- (g) IT Rooms shall be rectangular in shape, contain no columns or braces where equipment is to be located, and shall have a minimum of nine (9) feet and six (6) inches from the finished floor to the ceiling.

3.8.10.5.3 Specific BDF Room Requirements

- (a) BDF rooms shall allow for a minimum twelve (12)-foot by twenty-three (23)-foot space and shall be sized to accommodate a minimum of four (4) two-post network equipment racks and three (3) server cabinets. The BDF room may also act as an IDF room and serve end-user device outlets within its service area, in which case the BDF room may require one additional equipment rack increasing such BDF room to a minimum size of twelve (12) feet by twenty-six (26) feet.

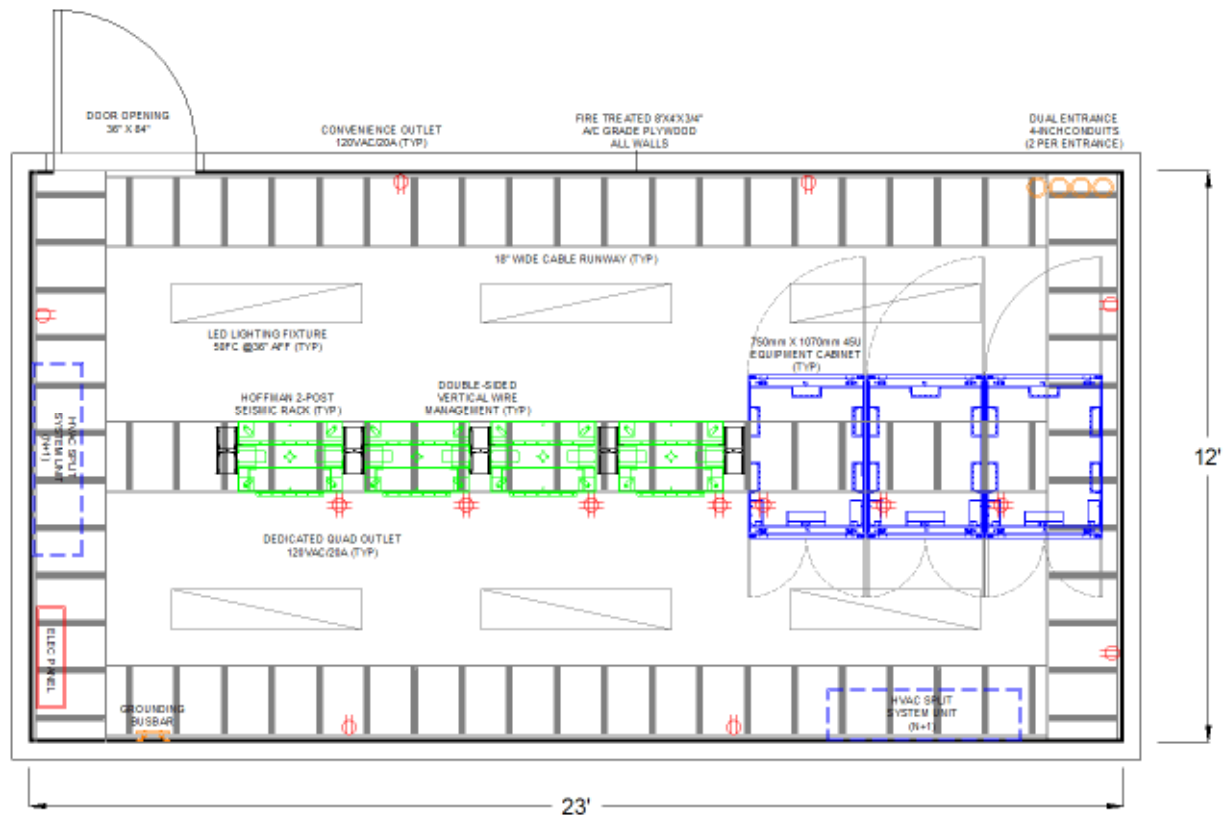


Figure 3.8.10.5.3(a): Typical BDF Room Layout

3.8.10.5.4 Specific IDF Room Requirements

- (a) IDF rooms shall allow for a minimum ten (10)-foot by twelve (12)-foot space and shall be sized to accommodate a minimum of three (3) two-post network equipment racks. In each case, IDF room size and placement requires evaluation for horizontal cabling service areas, amount and type of rack-mounted equipment, allowances for wall mounted equipment (such as electrical and security panels), and working clearance in front of the equipment.



Figure 3.8.10.5.4(a): Typical IDF Room Layout

3.8.10.5.5 Academic: Research: Core Lab: Research Server Facility Area Requirements

- (a) Developer shall provide an Academic: Research: Core Lab: Research Server Facility Area. The Research Server Facility Area shall be sufficient to deliver a fully functional Research Server Center ready for University installation of active electronics into racks, and shall include:
 - (i) containerized data center components;
 - (ii) supporting infrastructure; and
 - (iii) Research Server Center yard.
- (b) The Research Server Facility Area shall be located within close proximity to the Central Plant and the TCOMM and shall comply with the following requirements:
 - (i) The Containerized Data Center shall comprise one or more prefabricated container units housing a fully self-contained data center with the following elements:

- (1) 1000U of rack capacity with standard 19" racks.
 - (2) 400kW of power capacity at the rack bus, with the ability to provide individual racks with either redundant or non-redundant power supply units.
 - (3) 400kW of cooling at the racks.
 - (4) Hot and Cold aisle design with access to both aisles for equipment maintenance.
 - (5) Integrated power and cooling at the racks with front to back air flow.
 - (6) Integrated and redundant (N+1) power distribution with breaker board and emergency power off.
 - (7) Integrated UPS, with 15 minutes capacity at full load.
 - (8) Integrated cooling system. Cooling may connect to existing campus central chilled water system, or may be self-contained.
 - (9) Built-in, fully self-contained fire detection and suppression system.
 - (10) Humidity monitoring and control.
 - (11) Connections to campus data network.
 - (12) Full interface with campus BMS system.
 - (13) Full interface with campus Security System.
 - (14) PUE of 1.1 or less.
- (ii) The containers shall be fully weatherproof (NEMA 3R) without requiring additional canopy or shelter, and shall be high albedo to reduce solar gain.
- (iii) Supporting infrastructure shall include:
- (1) Pad mounted switchgear and transformer (NEMA 3R) sized to accommodate a second containerized data center of equal capacity. Cabinet shall have space to add a second distribution breaker for future data center unit.
 - (2) Standby generator with 8 hour running time. The generator shall be in accordance with Section

3.8.5.4.4 (Generator System) of the Technical Requirements.

- (3) Utility connections from Existing Campus Utilities to the Data Center. Utility connections shall be sized to accommodate installation of a second containerized data center of equal capacity.
- (4) If Campus Chilled Water solution is used, Developer shall verify capacity of the existing campus to ensure that the added load is within the design capacity.
- (iv) Research Server Center Yard Sitework shall be constructed in accordance with Area Data Sheet EX 35 and the following requirements:
 - (1) Provide an enclosed area with room for future expansion of at least one more containerized data center of equal capacity and all supporting infrastructure.
 - (2) Provide a structural concrete paved pad, sufficient to support containers without specialized foundations. Pad shall extend at least 10' beyond containers on all sides, and be sloped to drain. Pad shall be set at least 6" above surrounding grade level and above 500 year flood level.
 - (3) Provide landscaping to perimeter fence to provide visual screening.

3.8.10.5.6 Network Distribution Center (NDC) Requirements

- (a) A new network distribution center shall be included as part of the Project. This shall be a dedicated room that must be located within one of the Buildings delivered as part of the First Delivery Facilities. The NDC shall provide redundant connections back to the Existing TCOMM Facility.
- (b) Use the BDF room layout and associated requirements as a reference size and layout.

3.8.10.5.7 IT Rooms Architectural Requirements

- (a) Each BDF and IDF room wall shall be covered with 8-foot x 4-foot x 0.75-inch AC-grade fire treated plywood (A-grade side out) mounted six (6) inches above finished floor.
- (b) Walls and plywood shall be painted with a low-gloss white paint. Mask around fire retardant label on plywood.

- (c) Drop ceilings, windows or skylights shall not be permitted within IT Rooms.
- (d) Provide vinyl composite tile (VCT) with static dissipative properties in all IT Rooms.
- (e) IT Rooms shall be free of water or drain pipes not directly required in support of the equipment within such rooms. Routing through IT Rooms is not permitted.
- (f) All walls within IT Rooms shall be a minimum one (1)-hour fire-rated. Four (4)-inch sleeves shall be used for vertical pathways and must be firestopped at each floor.
- (g) Doors to IT Rooms shall be a minimum of three (3) feet wide and seven (7) feet high clear. Doors shall always open outward (code permitting). The path route to the IT Rooms shall allow for delivery of large local area network (LAN) equipment. Doors shall not have windows, vents, or louvers.
- (h) IT Rooms shall be named in accordance with Chapter L (Telecom Requirements) of Part II of the UC Merced Design Standards.

3.8.10.5.8 IT Rooms Structural Requirements

Design for a minimum distributed load rating of one hundred (100) lbs/square foot and a minimum concentrated load of at least two thousand (2,000) lbs/square foot.

3.8.10.5.9 IT Rooms Electrical Requirements

- (a) Provide an electrical panel in each IT Room. These panels shall only serve circuits within each IT Room including racks, cabinets, mechanical systems, lighting, and security equipment panels. Do not feed convenience outlets from these panels. Ensure twenty percent (20%) spare breaker slots are available in panel after building occupancy acceptance. The estimated electrical load of room(s) it serves shall not exceed eighty percent (80%) of its capacity. Such panel shall remain unlocked at all times.
- (b) Base initial loads as follows for network equipment:
 - (i) each 2-post equipment rack shall be based on a maximum of 3KW;
 - (ii) each equipment cabinet in the BDF room shall be based on a maximum of 10KW of power and cooling each; and
 - (iii) lighting, mechanical, and security electrical loads shall be provided separately.

- (c) Before commencement of the Construction Work, Developer shall submit all design electrical loads to the Owner for usage verification.
- (d) One 120VAC/20A (NEMA 5-200 quad electrical circuit, one 120VAC/30A (NEMA L5-30) electrical circuit and one 208VAC/30A (NEMA L6-30) electrical circuit shall be provided above each equipment rack/cabinet.
- (e) Mount the backboxes for electrical circuits to racks/cabinets to the side of the overhead cable runway, with the plugs facing the rear circulation aisle of the room.
- (f) Place 120VAC/15A (NEMA 5-15) convenience outlets every six (6) feet along the walls, with a minimum of one per wall.

3.8.10.5.10 IT Room Fire Suppression Requirements

- (a) Server rooms and BDF rooms will require Heptafluoropropane (HFC-227) fire suppression systems be installed as an extra layer of protection in conjunction with a dry pipe pre-action system. All rooms must be sprinkled per code.
- (b) IDF rooms shall have standard fire sprinkler system (FP1).
- (c) Locate sprinkler heads at least 24 inches above the top of the overhead cable management and provide cages to protect heads from accidental activation. Do not locate heads and pipes directly over the equipment racks. Place and route these over the circulation aisles instead.
- (d) Provide smoke detection.
- (e) Provide one portable clean agent fire extinguisher, spaced per the California Code of Regulations, Title 19 (Public Safety) requirements, rated for Class A and Class C fires.

3.8.10.5.11 IT Room Lighting Requirements

- (a) Provide a minimum of thirty (30) foot-candles of illumination on the vertical surfaces of the wall and rack mounted equipment when measured thirty-six (36) inches above finished floors.
- (b) LED lighting shall be required for all IT Rooms. Align fixtures with circulation aisles and locate above overhead cable management.
- (c) Incorporate motion-based lighting into design.

- (d) Provide one fixture within each IT Room with a battery-operated ballast (or connection to the Building emergency generator, if available), locate emergency fixture closest to the door.
- (e) Locate light switches near the door to the room. Dimmer switches shall not be permitted.
- (f) Lighting shall not be placed over equipment racks, cable trays, or runways so as to cast a shadow over the work area.
- (g) Containerized server rooms area shall be illuminated at night to provide surveillance by patrol and to enhance the CCTV imagery such that there are no dark areas/shadows. The use of light packs is not acceptable.

3.8.10.5.12 IT Mechanical Room Requirements

- (a) BDF rooms shall be equipped with two independent cooling units (assume split system units) in N+1 configuration. Under no circumstances is the building cooling system to be used in any of the IT Rooms, except for IDF rooms on floors that include predominantly Housing Areas. Cooling system shall operate continuously, three hundred sixty-five (365) days per year and maintain a temperature between 65°F and 85°F (65°F and 90°F for IDFs on floors that include predominantly Housing Areas).
- (b) Intentionally deleted.
- (c) IDF Rooms shall be equipped with one independent cooling unit (assume split system unit), except for IDFs on floors that include predominantly housing areas, which may use building air transfer. Cooling system shall operate continuously through the year.
- (d) Base initial loads as follows for network equipment:
 - (i) Each 2-post equipment rack shall be based on a maximum of 3KW.
 - (ii) Each equipment cabinet in the BDF room shall be based on a maximum of 10KW of power and cooling each.
- (e) Under no circumstances is the Building cooling system to be used in any of the IT Rooms.
- (f) Humidity control is not required in the IDF rooms. BDF rooms shall comply with ASHRAE Thermal Guidelines for Data Processing Environments published by the TC9.9 Committee.
- (g) Maintain positive air pressure within the IT rooms.

- (h) Hang all mechanical equipment from the ceiling. Wall mounting equipment is acceptable provided that such unit is located above the overhead cable runways. Mount equipment as high as possible so as not to interfere with horizontal sleeves and cable management within the room. Cooling units shall be placed over doorways. For N+1 requirements, place one unit over doorway and the other unit on the opposite side of the room.
- (i) Ensure unimpeded access is available for maintenance of the units.
- (j) Provide one (1) air change minimum per hour.
- (k) Provide an independent thermostat control located within each IT Room, and configure it as its own dedicated zone.
- (l) Do not route ducts, pipes, or conduits through the IT Room that do not serve such IT Room.
- (m) Split systems shall be provided with a manufacturer-specified auto restart function to ensure the unit comes back on fully functional automatically after a power failure. Manual restart after a power interruption is not acceptable

3.8.10.5.13 IT Room Physical Security Requirements

- (a) Provide door hardware for each IT Room allowing the doors to be locked and keyed separately from doors of non-IT spaces. IT Room doors shall have fail-secure electronic hardware such as electronic mortise locks to allow entry by means of card reader access.
- (b) Provide a card reader, door contact, and request-to-exit switch.
- (c) Add fixed HD CCTV cameras within BDF rooms to cover room entrance (in/out) entrance and between each rack row with opposing views.
- (d) The requirements set forth in Section 3.8.10.5.13 (a) through (c) shall also be implemented in the exterior containerized server rooms. Provide HD CCTV coverage of all access points into such server rooms and entrance gates for both, pedestrians and vehicles.

3.8.10.5.14 IT Room Equipment Requirements

- (a) Provide equipment racks consisting of seven (7) feet high by nineteen (19) inches wide open (2-channel) equipment racks and double-sided vertical cabling managers. Quantity of racks shall be consistent for every BDF/IDF room unless noted otherwise.

- (b) Provide equipment cabinets that are thirty (30) inches wide by forty-two (42) inches deep (minimum) with 42U of internal work space. Quantity of cabinets shall be consistent for every BDF room unless noted otherwise.
- (c) Provide overhead cable management in the form of cable runway or cable tray at least twelve (12) inches wide and placed at ninety (90) inches above finished floor to coincide with the top of the equipment racks and cabinets. Define the actual size of the cable runway or cable tray based on supported cable-fill quantity. Provide proper clearance from top of ladder rack and HVAC ducting and other building support components.
- (d) Provide cable support, such as vertically installed cable runway to support cables entering the room from floor sleeves, slots, and conduit. Provide cable drop-outs where cables transition from vertical to horizontal cable management.

3.8.10.6 Pathways

3.8.10.6.1 Outside Plant Pathways

- (a) Each Building shall have a primary and a secondary pathway entrance which shall be placed at different locations. Developer shall coordinate such pathway entrances with the Owner.
- (b) Each entrance facility requires a minimum size of 4-inch conduits installed to each Building. For multi-story Buildings install eight 4-inch conduits divided into two 4-duct duct banks. These pathways shall be designed to route separately from the designated communications vaults, buildings, or utility tunnels into the Building's BDF room. The two pathways shall only meet at the BDF room, and not share a common trench. For single story Buildings install four 4-inch conduits divided into two 2-duct duct banks.
- (c) The telecom conduits shall have a pull point after every two 90-degree turns and after each section length of three hundred fifty (350) feet. Provide appropriately sized vaults and lids for the type of application and size and quantity of ducts. Do not use a vault as a change in direction along a duct bank.
- (d) Developer shall use the lowest placed ducts within the manholes for the IT Infrastructure. Ducts shall be segregated by cable type so that all fiber is in dedicated ducts and copper is in dedicated ducts.
- (e) Concrete encasement shall be provided for all outside plant conduit runs.

- (f) Provide warning tape with an electronically traceable feature above telecom conduits within the trench. Telecom and electrical wiring may share the same trench where both travel the same route, but cannot share the manholes.
- (g) At minimum, two of the conduits per entrance facility shall contain two 3-cell fabric type innerduct sub-ducting for fiber cabling.
- (h) Containerized server room exterior area shall have a primary and a secondary pathway entrance which shall be placed at different locations. Developer shall coordinate such pathway terminations with the manufacturer and the Owner.

3.8.10.6.2 Inside Plant Backbone Pathways

- (a) The backbone fiber and copper cabling shall be routed through the inside plant backbone pathways.
- (b) The inside plant backbone pathways shall connect the BDF room to each of the IDF rooms within the Building.
- (c) In the event IT Rooms are stacked, the pathways shall be four (4)-inch sleeves through the floor slab. For 2-story Buildings, provide three 4-inch conduits routing up from the BDF room. For Buildings with three (3) or more stories, provide four (4)-inch sleeves. These pathways shall also accommodate other low voltage cabling such as security, coaxial, and horizontal cabling transitioning between floors. Developer may utilize EZ-Path® brand conduits and systems in lieu of the sleeves described in this Section 3.8.10.6.2(c).
- (d) Only those systems that are considered low voltage and non-EMI/RFI emitting cabling may utilize backbone pathways. All other systems shall utilize separate dedicated and independent pathways.

3.8.10.6.3 User Space Pathways

- (a) Building pathways intended to support telecommunications cables shall originate at the IT Rooms and shall be routed to and through User space.
- (b) User space pathways shall be basket style cable trays routed though main Building corridors above the accessible ceiling.
- (c) Transition from cable tray to four (4)-inch conduits when routing over hardcap and other non-accessible ceiling types. For every conduit used, a spare conduit shall be required and left empty until the Occupancy Readiness Date of the Building. Install ceiling

hatches to facilitate cable installation in hardcap ceiling exceeding eighty (80) feet in length.

- (d) Design the user space pathways with adequate access clearances for cable installations and future serviceability.
- (e) Design the tray for a cable fill of thirty percent (30%).
- (f) Deploy cable tray system with radius bends only, with a minimum radius based on the cables it supports. At a minimum, the typical fourteen (14)-inch industry standard shall be utilized. Remove all sharp corners and ends before pulling cables.
- (g) Fully enclosed wireways or raceways shall not be permitted as a primary pathway.
- (h) Trapeze style supports are required for all cable tray installed. No center hung solutions are acceptable.
- (i) Microphone cables or other EMI/RFI cables are not allowed to be installed in common cable tray or conduit routes with other low voltage wiring.

3.8.10.6.4 Secondary Pathways - Cable Hangers

- (a) Provide cable hangers above accessible ceiling.
- (b) Limit use of cable hangers to a maximum of fifty (50) feet from the primary pathway (cable tray), and a maximum of thirty (30) cables per bundle.
- (c) Install hangers using ninety (90) degree rule (no diagonal cable runs).

3.8.10.6.5 Secondary Pathways - Furniture Feeds

Provide conduit feed points to modular furniture spines. Size pathways based on cable quantity and with a twenty percent (20%) spare capacity. Provide spiral wrap or similar product to protect cable transition between feed point and modular furniture.

3.8.10.6.6 Secondary Pathways - Raceways

- (a) Provide wire ways/raceways where required based on applications, including laboratory environments. Size the raceways to provide spare capacity. Combine power and data into same raceway with appropriate partitions.
- (b) Provide conduit feeds to the raceway dedicated for telecom cabling only. Size pathways based on cable quantity and with added spare capacity.

3.8.10.6.7 Outlet Rough-in

- (a) For category 6 and 6A (CAT6 and CAT6A) cabling, or higher, stub up one 1¼-inch conduit from the ceiling space, or the primary pathway, to the outlet backbox. Provide one 5-inch square by 2-7/8 inch deep box with a single-gang ring. For special and unique locations where multiple services need to share the same box, provide a double-gang ring if required.
- (b) Outlet conduits shall be sized to provide space for a minimum of two future Cat 6 or CAT6A cables or horizontal 4-strand fiber optic cable.
- (c) For conduits that do not stub into the ceiling space, provide a junction box as a pull point at every two (2) 90-degree turns or after one hundred (100) feet in length.
- (d) Floor set Data Outlets:
 - (i) In-floor Data Outlets shall be recessed or flush as noted in Appendix 6 (Area Data Sheets). Raised or monument Data Outlets shall not be permitted.
 - (ii) All flush floor Data Outlets shall have captive/hinged covers that can be held closed by turn screw or similar positive latching mechanism.
 - (iii) Recessed Data Outlet boxes shall have hinged covers with wire slots and be large enough to fully enclose any standard telephone or data plugs, such that the lids close fully when outlets are in use.
 - (iv) All Data Outlet boxes and covers shall be corrosion resistant construction and liquid-tight where likely to be exposed to liquid.

3.8.10.6.8 Multi-Services Devices

- (a) Specific applications that require multi-service floor and wall boxes shall conform to the requirements of this Section 3.8.10.6.8.
- (b) All multi-service boxes, including floor boxes, poke-through boxes and flat-panel display boxes, which housing audiovisual, electrical and telecommunications connections shall be recessed.
- (c) Floor boxes shall accommodate separate pathways and termination gangs for each service. In slab applications, route the pathways embedded in the slab, and not under the slab.

- (d) For poke-through boxes, the AV and telecom services may share the same entry point into the poke-through device. If the poke-through stubs into a non-accessible ceiling below, provide conduits for telecom cabling to the nearest accessible ceiling or IT Room. Microphone cables must be routed separately into poke-through boxes.
- (e) For flat-panel audiovisual displays, the box must accommodate separate pathways and termination gangs for each service.

3.8.10.7 Structured Cabling

3.8.10.7.1 Outside Plant Backbone Cabling

The Network Distribution Center (NDC) shall serve as the primary distribution point for all fiber and copper backbone cabling for the Buildings.

- (a) Fiber Optic Backbone
 - (i) The NDC shall be connected to the Existing TCOMM Facility through a new dedicated two hundred eighty-eight (288) strand singlemode fiber optic cable installed in redundant pathways. Multimode fiber is not required. Install a forty-eight (48) strand singlemode fiber from the NDC to each Building in redundant pathways. Multimode fiber is not required.
 - (ii) All fiber shall be terminated via duplex LC connectors into a rack-mounted fiber patch panel at each end.
 - (iii) The fiber composition must be an indoor/outdoor rated cable.
- (b) Copper Backbone
 - (i) Copper cables shall be bonded, shielded and air-core (ARMM series) type, and terminated on wall-mounted lightning protection blocks at each end. Size the actual cable based on quantity of users and equipment requiring voice circuits within the building, plus a 20% spare capacity.
 - (ii) Copper connectivity shall consist of four hundred (400)-pair cables installed in redundant pathways between the Existing TCOMM Facility and the NDC through new and existing pathways.

3.8.10.7.2 Inside Plant Backbone Cabling

- (a) The inside plant backbone cabling shall connect the BDF rooms to the IDF rooms. Cabling shall be routed within the backbone

pathways, and support voice, data, and other low voltage communications.

(b) Fiber Optic:

- (i) Fiber optic cables shall consist of twenty-four (24) singlemode and twenty-four (24) multi-mode OM4 rated hybrid cables.
- (ii) All fiber will be terminated via duplex LC connectors into a rack-mounted fiber patch panel at each end.
- (iii) Indoor fiber optic cables will be plenum rated with an armored jacket. No additional innerduct will be required.

(c) Copper:

- (i) Copper cables shall be one twisted pair cable, ARMM series type, containing a minimum of one hundred (100) pairs, and terminated on rack mounted category 3 patch panels at each end. Size the actual cable based on quantity of users and equipment requiring voice circuits within the Building.

3.8.10.7.3 Horizontal Cabling

- (a) All horizontal cabling shall be Plenum-rated, unshielded twisted pair (UTP). Category 6A (CAT6A) rated cables shall be used for all horizontal cabling, except for:
 - (i) horizontal cabling in Areas subject to Area Data Sheets SH-01, SH-02, SH-03, SH-09 and SH-32, and;
 - (ii) Areas subject to Area Data Sheets SH-04, SH-05, SH-18, SH-22 and SH-21 when located on floors comprised predominantly of Areas subject to Area Data Sheets SH-01, SH-02, SH-03, SH-09 and SH-32;
 - (iii) horizontal cabling in the Areas described in Sections 3.8.10.7.3(a)(i) and (ii) shall be Category 6 (CAT6).
- (b) Terminate cabling within the IT Rooms on rack-mounted patch panels with 8-position modular jack ports. Terminate cabling at the work areas on 8-position modular jacks. Jacks shall match color of cabling.

3.8.10.7.4 Data Outlets

- (a) The horizontal cabling shall connect the IT Rooms to the work areas and support the users' voice and data communications

through Data Outlets. The horizontal cabling configurations may vary depending on the intended work areas served.

- (b) Wall phones shall be required in following Area Types, as set forth in Appendix 6 (Area Data Sheets) of these Technical Requirements:
 - (i) Conference room 03: 24 seats (ADS ID: GN-06);
 - (ii) Mechanical Room (ADS ID: NA-06);
 - (iii) Electrical Closet (ADS ID: NA-09);
 - (iv) IT Closet (ADS ID: NA-10) and all IT Rooms;
 - (v) all storage rooms larger than two hundred fifty (250) ASF as assigned in specific Area Data Sheets; and
 - (vi) all delivery docks, for which such wall phones shall be located on the exterior
- (c) Color code the category 6 and 6A (CAT 6 and CAT6A) horizontal cables to facilitate identification and maintenance activities. The termination jacks are to match the cable color. Color codes are as follows:
 - (i) Voice/Data = Blue;
 - (ii) Wireless = Orange;
 - (iii) Security = Black;
 - (iv) AV/IPTV = Slate; and
 - (v) CMMS/BMS = Yellow.

3.8.10.7.5 Basic Data Outlet

The basic Data Outlets shall consist of a single port outlet with one data cable installed and shall support, at a minimum, voice or data applications for limited connectivity applications including:

- (a) wall phones and, courtesy phones;
- (b) kiosks (visitor, ATM, intelligent vending);
- (c) card readers;
- (d) CCTV cameras; and
- (e) duress buttons.

3.8.10.7.6 Standard Data Outlet

The standard Data Outlets shall consist of a two (2)-port outlet with two (2) data cables and shall support voice and/or data applications. Standard Data Outlets shall be installed in all Areas, except Areas where use of a basic Data Outlet or an integrated Data Outlet has been specified in Section 3.8.10.7.5 or Section 3.8.10.7.8, respectively, of the Technical Requirements.

3.8.10.7.7 Intentionally deleted

3.8.10.7.8 Integrated Data Outlet

The integrated Data Outlets shall support voice, data, and/or video applications and shall be installed in Conference Room Areas, Classroom Areas, and Office Areas as specified in Appendix 6 (Area Data Sheets) of these Technical Requirements.

3.8.10.8 Wireless Infrastructure Development

Cabling infrastructure for the implementation of a data wireless network shall be required throughout the Project Site.

3.8.10.8.1 Specific Area Data Sheet Requirements

Developer shall provide wireless devices in accordance with the following requirements as indicated in the Area Data Sheets:

Wireless Devices	
TW1	Assume (1) wireless devices per person (based on maximum occupancy) with a coverage at 5GHz with measured reception no less than -65DBm.
TW2	Assume (2) wireless devices per person (based on maximum occupancy) with a coverage at 5GHz with measured reception no less than -65DBm.
TW3	Assume (3) wireless devices per bed with a coverage at 5GHz with measured reception no less than -65DBm.
TW4	Assume (3) wireless devices per person (based on maximum occupancy) with a coverage at 5GHz with measured reception no less than -65DBm.

Table 3.8.10.8.1: Wireless Devices

3.8.10.8.2 Wireless Terminations

- (a) Provide one Data Outlet at each wireless network location comprised of two UTP Category 6A (CAT6A) cables.
- (b) Terminate the cables within the IT Room on rack-mounted patch panels. Allocate a separate patch panel field for wireless network outlets. These terminations may be combined in the same patch panel as cables to other Power-over-Ethernet (PoE) devices, such as security cameras.

3.8.10.9 Grounding and Bonding

The telecommunications grounding and bonding system shall provide a low impedance path to ground for telecommunications equipment and support systems.

3.8.10.9.1 Grounding Subsystem

- (a) The telecommunications grounding backbone system shall tie the IT Rooms together with a connection to the Building's main ground reference, and a busbar per room.
- (b) The grounding backbone shall include:
 - (i) One conductor from the main Building ground reference point to the busbar in the BDF room referred to as the bonding conductor for telecommunications;
 - (ii) One main ground busbar in the BDF room referred to as the telecommunications main ground busbar (TMGB);
 - (iii) One ground busbar in each IDF room referred to as the telecommunications ground busbar (TGB);
 - (iv) One or more conductors from the TMGB connecting to each TGB referred to as the telecommunications bonding backbone; and
 - (v) A connection from each TGB to Building steel within the room, if available.

3.8.10.9.2 Bonding Subsystem

- (a) Telecommunications equipment and support systems shall bond to the TGB within the same room. This bonding shall include a continuous electrical connection from the following components to the room's TGB:
 - (i) equipment racks (not bonded in series);
 - (ii) overhead cable tray or runway;
 - (iii) vertical cable runway on wall;
 - (iv) 110-blocks wall termination field in BDF;
 - (v) conduits entering the room, except for conduits to the roof;
 - (vi) electrical panel in the room; and
 - (vii) lightning protection blocks (applicable to BDF room only).

- (b) The overhead power distribution system, lighting system and telecom conduits to the roof shall be bonded to the electrical system.

3.8.10.9.3 User Space

The cable tray and primary pathway conduits (not sleeves) shall be bonded to the nearest electrical panel's busbar.

3.8.10.10 Fire Protection

- (a) In the cases where EZ-Path 44 fire stop devices are used, such devices shall be provided through fire rated walls and slabs. For other type of penetrations, provide UL rated fire stop systems at each penetration through rated slabs and walls where EZ-Path® devices are not used. Fire stop system shall match wall/slab rating.
- (b) In the cases where conduit sleeves for cable penetrations through firewalls are installed, the conduit sleeves must be fire stopped using appropriate materials for the rating of the wall.

3.8.10.11 Testing

3.8.10.11.1 Backbone Fiber Optic Cabling

- (a) Test the backbone fiber optic cables for the following:
 - (i) passive link insertion loss (power meter and light source) using an appropriate launch cable; and
 - (ii) characterization with an optical time-domain reflectometer shall only be required should an anomaly be encountered during the light loss testing.
- (b) All testing shall be single direction at both wavelengths. Should there be an anomaly in the single direction, then bidirectional testing will be required.

3.8.10.11.2 Backbone Copper Cabling

- (a) Test the backbone twisted pair cables for the following:
 - (i) wire map (shorts, opens, reversals, transpositions); and
 - (ii) length.

3.8.10.11.3 Horizontal Cabling

Test the horizontal cables according to ANSI/TIA/EIA requirements for the chosen category type chosen for the building.

3.8.10.12 Labeling and Administration

3.8.10.12.1 Backbone ISP and OSP Fiber Optics and Twisted Pair Cables

- (a) General Requirements
 - (i) Labeling, identifier assignment, and the label colors shall conform to the TIA/EIA-606-A Administration Standard and as approved by the Owner before installation.
 - (ii) Provide permanent and machine generated labels; hand written labels will not be accepted.

3.8.10.12.2 Cable Labels

- (a) Label Format:
 - (i) Label type shall be wrap-around self-laminating.
 - (ii) Label color shall be white background with clear laminating window.
 - (iii) Text color shall be black; text height shall be 1/8 inch high minimum or #12 font size.
- (b) Provide labels on both ends of cables. Fully wrap label around the cable jacket. Install labels no more than 4 inches from the edge of the cable jacket. Install labels such that they are visible by a technician from a normal stance.
- (c) For backbone ISP and OSP fiber optics cables, label wall within the center of each fiber slack reel with the cable ID stored within that storage reel.

3.8.10.12.3 Termination Apparatus Labels

- (a) Use labels included in the product packaging.
- (b) Label color shall be white for respective field type, per TIA/EIA-606-A.
- (c) Text color shall be black, 3/32 inch high, minimum, or #10 font size.

3.8.10.12.4 Identifier Assignment

- (a) General: Separate all label fields of the identifier with a hyphen.
- (b) Cables:
 - (i) The first field shall identify CAAN number.

- (ii) The second field shall identify the originating termination room identifier as shown on the plans; e.g., "BDF101 for ISP or MDF for OSP".
 - (iii) The third field shall identify the ending termination room identifier as shown on the plans; e.g., "IDF201 for ISP or "Building identifier" for OSP".
 - (iv) For backbone fiber optics cables, the fourth field shall identify the type and number of strands; for example, "MMxxx" where "MM" stands for multimode and xxx stands for the ending fiber strand sequential count. Use "SM" for single mode.
 - (v) For backbone twisted pair cables, the fourth field shall identify the beginning and ending pair counts.
- (c) Termination Positions at the Termination Panels:
- (i) For ISP, make the first field of the identifier the originating/destination room; for example "TO IDF201". For the OSP, first field shall identify the CAAN number assigned by the Owner to this Project.
 - (ii) For ISP, make the second field of the identifier the strand/pair count range; for example, "MM024". For the OSP make the second field of the identifier the destination room; for example "TO 'Building identifier BDF101.'"
 - (iii) For OSP, make the third field of the identifier the strand/pair count range; for example, "MM048".
 - (iv) Identifier Example: "TO IDF201 MM024 for ISP and 0252 TO 'Building identifier' BDF101 MM048 for OSP".

3.8.10.12.5 Ancillary Labeling Requirements

- (a) Equipment racks shall be labeled with room and rack number. Use letter designators for rooms with more than one row of racks.
- (b) Fire-stopping systems shall be labeled with UL system adjacent to each fire-stopped penetration.
- (c) For grounding and bonding systems, each busbar and conductor at the busbar shall be labeled.

3.8.11 Audiovisual Systems

3.8.11.1 General Requirements

3.8.11.1.1 Developer shall design and install Audiovisual (AV) systems at the Facilities in accordance with the requirements of this Section 3.8.11 (Audiovisual Systems). The AV system for an Area shall comprise the AV Equipment identified in the applicable Area Data Sheet, together with the AV Infrastructure, IT Infrastructure and power necessary to provide for an integrated system for video and audio capture, live presentations and presentation of recorded or transmitted material, as applicable.

3.8.11.1.2 Developer shall design and construct the Facilities to accommodate the Indicative IT Equipment Package for each Area Type identified in Appendix 1-B (Program Elements) of the Technical Requirements, the details of which are set forth in Appendix 18 (IT Equipment Packages) of the Technical Requirements, which includes Appendix 18-A (AV Equipment Packages). Developer shall procure, install and commission the Facility IT Equipment (which includes AV Equipment) specified by the Owner in accordance with Section 4.3.3 (IT Equipment) of the Agreement. Location of AV Equipment devices and controllers shall be coordinated with the Owner.

3.8.11.1.3 Developer shall be responsible for any power outlets required in connection with the AV Equipment are in addition to the outlets required for convenience power shown in the Area Data Sheets.

3.8.11.1.4 Developer shall design and install Integrated sound system speakers, including in-wall and in-ceiling speakers. Speaker number, distribution and location shall be determined by Developer and shall be sufficient to provide uniform sound levels within the room with no distortion, feedback or echo and to meet the requirements set forth in Section 3.8.11.2 (Audio System Performance Requirements).

3.8.11.1.5 Developer shall be responsible for the interface between AV control systems and building systems, including the room lighting control systems specified under Section 3.8.6 (Lighting Systems) of the Technical Requirements and Building Management Systems specified under Section 3.8.4 (Building Management System) of the Technical Requirements, and including any conduit, wiring and programming required at the lighting control or the Building Management System (herein referred to as "AV/Building System Interface").

3.8.11.1.6 Developer shall procure, install, commission and test all AV Equipment detailed in the Area Data Sheets and the AV Equipment Packages including any mounting walls or ceilings. AV Equipment shall be installed to provide a complete, functional system.

3.8.11.1.7 Developer shall refer to the Area Data Sheets for the proper design loads of flat surfaces within a room or Area for the proper installation of AV Equipment.

3.8.11.1.8 Any telecom service provided to installed AV Equipment shall be routed to the NEMA box by the rack and terminated to the switch installed in the AV rack. This switch will connect to main network service in the IDFs and BDFs. AV Equipment shall not receive telecom service directly from IDFs or BDFs

3.8.11.1.9 All AV Infrastructure and the associated IT Infrastructure shall meet ADA requirements, including assistive listening systems, visual access, and other accommodations, as required by applicable Law.

3.8.11.1.10 Control panels for lighting, window coverings, AV/Building System Interface controls, and thermostats shall be located as a group in each room.

3.8.11.1.11 All AV Infrastructure and the associated IT Infrastructure shall conform, at a minimum, to the operating parameters set forth in this Section 3.8.11.1, unless otherwise specified in the Technical Requirements, applicable Law or manufacturer's specifications.

3.8.11.1.12 AV system design and installation shall conform to the following standards:

- (a) ANSI/INFOCOMM 1M-2009, Audio Coverage Uniformity in Enclosed Listener Areas.
- (b) ANSI/INFOCOMM 2M-2010, Standard Guide for Audiovisual Systems Design and Coordination Processes.
- (c) ANSI/INFOCOMM 3M-2011, Projected Image System Contrast Ratio.
- (d) ANSI/INFOCOMM 4:2012, Audiovisual Systems Energy Management.
- (e) ANSI/INFOCOMM 10:2013, AV Systems Performance Verification.
- (f) ANSI/CEA/CEDIA/InfoComm, Audio, Video and Control Architectural Drawing Symbols Standard.
- (g) ELECTRONIC SYMBOL FILES for J-STD-710 Audio, Video and Control Architectural Drawing Symbols Standard.
- (h) INFOCOMM F502.01:2016 Rack Building for Audiovisual Systems.
- (i) INFOCOMM F501.01:2015 Cable Labeling for Audiovisual Systems.

3.8.11.2 Audio System Performance Requirements

3.8.11.2.1 Audio Systems shall include input and output devices, and amplification and mixing systems. Once installed, Audio Systems shall conform to the requirements set forth in this Section 3.8.11.2.

3.8.11.2.2 Once installed, audio signal (measured from media device outputs to AV system electronic outputs) shall conform to the following:

- (a) signal-to-noise ratio (including cross talk): 55 dB minimum;

- (b) total harmonic distortion: 0.1% maximum from 20 Hz to 20,000 Hz; and
- (c) frequency response: ± 1.0 dB, 20 Hz to 20,000 Hz.

3.8.11.2.3 Audio System reproduction (measured from media device outputs to acoustical loudspeaker outputs into rooms) shall comply with the following requirements:

- (a) signal-to-noise ratio (including cross talk): 55 dB minimum;
- (b) total harmonic distortion: one percent (1%) maximum from 30 Hz to 15,000 Hz;
- (c) sound output capability: program levels of not less than 95 dB shall be provided in the seating area without objectionable distortion, unevenness of volume, rattle or buzz. Several different samples, such as recorded music and microphones, shall be employed as test signals; and
- (d) hum and noise shall be inaudible (below the background noise level of the Area) under normal operation and as observed in normal seat locations.

3.8.11.3 Video System Performance Requirements

3.8.11.3.1 Once installed, all video systems shall conform to the following requirements:

- (a) Minimum WUXGA native resolution. Widescreen Ultra Extended Graphics Array (WUXGA) means a video display with a resolution of 1920 pixels by 1200 pixels with a 16:10 screen aspect ratio.
- (b) The light fall-off from the center of the projected image to all four corners, as measured at the projected image plane, shall not exceed 30% for video projector images.
- (c) Correct functional operation for all specified controls shall be provided. Functional operation shall be coordinated with the Owner's Authorized Representative.
- (d) Menus shall provide visible feedback of the active function at remote control stations and web-interfaced software. The controls program templates and functionality shall be coordinated with the Owner's Authorized Representative.
- (e) Wireless systems shall neither be the source of, nor be affected by, radio-frequency interference to and from any external signal devices.

3.8.11.3.2 Lecture capture cameras and devices shall be installed to capture instructor's images only. Such cameras and devices shall not be aimed at students.

3.8.11.4 AV Equipment Locations

3.8.11.4.1 Classroom 2: 90 Seat (TEAL), Flat Floor Areas

AV Equipment shall be located in slide-out racks in millwork/cabinetry, with all cabling and conduit being routed through walls and ceilings or in free-standing equipment cabinets, with cabling routed to an adjacent NEMA Type-1 consolidation box from the various conduits to equipment locations, and from NEMA boxes to cabinets. Provide thermostatically-controlled cooling that can draw in room air at the bottom of the front of the cabinet and exhaust equipment-warmed air through the back of the rear, or the back of the top of the cabinet. For each room's AV Equipment, provide a NEMA Type-1 consolidation box directly behind the cabinet bay.

3.8.11.4.2 Classroom 1: 299 Seat, Stepped Seating and Classroom 3: 90 Seat, Flat Floor Areas

AV Equipment shall be located in free-standing equipment cabinets, with cabling routed to an adjacent NEMA Type-1 consolidation box from the various conduits to equipment locations, and from NEMA boxes to cabinets.

3.8.11.4.3 Classroom 4: 30 Seat, Classroom 5: 24 Seat Seminar Room and Classroom Laboratories 1 - 7

AV Equipment shall be located in free-standing equipment cabinets, with cabling routed to an adjacent NEMA Type-1 consolidation box from the various conduits to equipment locations, and from NEMA boxes to cabinets.

3.8.11.4.4 All Other Areas

AV shall be located in free-standing equipment cabinets or in credenzas with cabling routed to an adjacent NEMA Type-1 consolidation box from the various conduits to equipment locations, and from NEMA boxes to cabinets.

3.8.11.5 Electrical Power Outlets

Electrical power outlets shall be provided in conformance with the following requirements:

- (a) One and two-gang outlet boxes: 4-11/16 inches square by 2½ inches deep box with single-gang and double-gang plaster rings respectively.
- (b) Three-gang and larger: ganged or masonry boxes, minimum three (3) inches deep.

3.8.11.6 Outlet Box Locations

- (a) A duplex outlet power box shall be installed at each ceiling mounted projector location. Such duplex outlet power box shall be flush mounted to the ceiling and within two (2) feet of the projector location.
- (b) A duplex outlet power box shall be installed at each wall mounted video screen.
- (c) A quad outlet power box shall be installed inside the AV/Building System Interface control panel at the designated wall location placement of the media cabinet.
- (d) A power junction box shall be located in the ceiling with flex cable to connect to each electric projection screen. Exact locations shall be coordinated with the Owner's Authorized Representative.
- (e) A quad outlet power box shall be installed on the back wall of the room to allow for auxiliary AV Equipment to be installed as needed. Coordinate exact location with the Owner's Authorized Representative.
- (f) A duplex outlet power box shall be installed at each wall where assistive listening device will be located which will be 96 inches above finished floor.
- (g) Common ground for all AV power outlets shall be provided.

3.8.11.7 Telecom Outlet Requirements

- (a) A telecom outlet shall be provided at each input and display device location.
- (b) Two (2) telecom outlets shall be provided at each digital signage display location.
- (c) A telecom outlet shall be provided at each audiovisual equipment rack and cabinet location.

3.8.11.8 Conduit and Back Box Requirements

- (a) The following conduits shall be provided from each room's consolidation box or pull box, a collection point for device conduits. The pull box shall be sized based on quantity and sizes of conduits stubbing into it.
- (b) No conduit run may have more than 180 degrees of bends. If more than 180 degrees is required, a mid-run pull box shall be

required. Conduit runs in excess of 75 feet shall be provided with mid-run pull boxes.

- (c) Projector location: 1¼-inch conduit. Where projectors are to be mounted in accessible ceilings, this conduit may stub to the accessible ceiling from the consolidation box. Where the ceiling is inaccessible, this conduit must run the entire distance to the projector location.
- (d) Wall speaker locations: Minimum of 1-inch conduit to each wall speaker location. Standard-size back boxes are acceptable.
- (e) Ceiling loudspeaker locations: for accessible ceilings, stub a minimum 1-inch conduit to the accessible ceiling from the consolidation box, and free-run loudspeaker cabling, with appropriate support, to the loudspeakers. For inaccessible ceilings, daisy-chain conduit to loudspeakers.
- (f) Wall mounted assistive listening device locations: provide a 1-inch conduit to each device location. Standard-size back boxes are acceptable.
- (g) Camera locations: in accessible ceilings, cabling may be free-run from a 1¼-inch conduit stub to the consolidation box, to a 1¼ inch stub to the camera box. In inaccessible ceilings, conduit must be continuous. Standard-size back boxes are acceptable.
- (h) Input device locations: provide a 1" conduit to each input device location.

3.8.11.8.1 Floor Boxes

In rooms with raised floors, use raised-floor-specific floor boxes with two (2) two-gang, partitioned openings for audiovisual devices.

3.8.11.9 Conduit Identification

3.8.11.9.1 Label each conduit at each end with the purpose (e.g. "projector", "speaker") and destination (e.g. "media cabinet", "wall speaker").

3.8.11.9.2 Each outlet box, back box, and pull box shall be labeled with its purpose, using legible, permanent labeling.

3.8.11.9.3 CATV/SMATV System

Each Building shall be equipped with the campus Cable Television (CATV)/Satellite Master Antenna Television (SMATV) system.

3.8.12 Point of Sale Systems

3.8.12.1 Developer shall design and install Point of Sale (POS) systems at the Facilities in accordance with the requirements of this Section 3.8.12. The POS system for an Area shall comprise the POS Equipment identified in the applicable Area Data Sheet, together with the IT Infrastructure and power necessary to provide for an integrated system Point of Sale activity, as applicable. The basis of design for POS Equipment shall be Micros or a product of equal or better quality and specifications.

3.8.12.2 Developer shall design and construct the Facilities to accommodate the Indicative IT Equipment Package for each Area Type identified in Appendix 1-B (Program Elements) of the Technical Requirements, the details of which are set forth in Appendix 18 (IT Equipment Packages) of the Technical Requirements, which includes Appendix 18-B (Point of Sale Equipment Packages). Developer shall procure, install and commission the Facility IT Equipment (which includes POS Equipment) specified by the Owner in accordance with Section 4.3.3 of the Agreement. Location of POS Equipment devices shall be coordinated with the Owner.

3.8.12.3 Developer shall construct all built-in counters, transaction cabinets or other POS cabinetry as detailed in the built-in equipment portions of the Area Data Sheets to accommodate POS Equipment.

3.8.12.4 Developer shall provide any power outlets required in connection with the POS Equipment, which are in addition to the outlets for convenience power specified in the Area Data Sheets.

3.8.12.5 Developer shall procure, install, commission and test all POS Equipment detailed in the Area Data Sheets and the POS Equipment Packages. POS Equipment shall be installed to provide a complete, functional system.

3.8.13 Signage

3.8.13.1 General Requirements

3.8.13.1.1 For the design and implementation of signage, and in addition to the requirements set forth in this Section 3.8.13 (Signage), Developer shall conform to Appendix 12 (UC Merced Signage Standards) of the Technical Requirements.

3.8.13.1.2 Any exceptions or deviations to the requirements of Section 3.8.13.1.1 shall be approved by the Owner.

3.8.13.1.3 Developer shall develop and submit to Owner for review in accordance with Section 2.6 (Work Submittal Review Process) of the Technical Requirements Signage Master Plan. Such Signage Master Plan shall include a design narrative explaining the signage and wayfinding approach, including signage required by applicable Law, for pedestrian, bicycle and vehicular traffic within the Project Site, including gateway signage.

3.8.13.2 Placement and Presentation

3.8.13.2.1 Sign Placement

Signs shall be located to present the necessary information at the point of first exposure to the viewer and meet code requirements. In selecting the placement of an exterior building sign, consideration shall be given to the surrounding terrain, viewing angle, line of sight, traffic flow, speed and power source if it is required.

3.8.13.2.2 Sign Size

The main consideration in determining sign size shall be the distance from which it must be read, the relative importance of the message, and the length of the message.

3.8.13.2.3 Sign Materials

Specific weights, thickness, materials and construction shall be both durable and of good quality. Edges shall be finished and seams and joints well executed and acceptable to the Owner in sample form during the performance of the Design Work.

3.8.13.2.4 Interior Sign Color and Finishes

All letters, numbers and/or symbols shall contrast with their background and have a non-glare finish. The color to be used for such letters, numbers and/or symbols shall be Benjamin Moore Branchport Brown. The background color for all interior signs shall be Dark Rhein Silver, non-glare shall be used unless otherwise noted. Signage mounted on glass shall have backers matching Dark Rhein Silver background color.

3.8.13.2.5 Sign Selection Considerations: Developer shall be responsible for signage conformance with all applicable Law and ADA Requirements. In the event of conflict between the requirements of Section 3.8.13.2.1 (Sign Placement) and applicable Law, all applicable Law shall govern.

3.8.13.2.6 All signs must be in alignment with Owner's policies.

3.8.13.3 Interior Signage

All interior signs shall be in compliance with Appendix 12 (UC Merced Signage Standards), subject to the following exceptions:

- (a) An alternative standard may be followed for gender inclusive signage provided that such signage is compliant with the CBC;
- (b) Screws are not required for wall-mounted signage in Housing: Residence Hall: Residential Floor Areas; and
- (c) The interior wall mounted LEED display requirements shall not apply. Developer shall obtain and provide to the Owner standard LEED recognition plaques.

3.8.13.3.1 All signage numbering shall follow the UC Merced Room Numbering System, and must be approved by the Owner.

3.8.13.3.2 Informational signs shall use short verbal messages or pictorial symbols to convey information in the clearest manner.

3.8.13.3.3 Office identification signage shall include a room number and occupant name(s). A logical and consistent room numbering system shall be developed.

3.8.13.3.4 Conference rooms or special-function rooms shall be identified with a room number and name of function. Other miscellaneous permanent spaces shall be identified by number and name.

3.8.13.3.5 All IT Rooms, Nonassignable Spaces: Mechanical Rooms, Nonassignable Spaces: Electrical Closets, including plumbing rooms, storage rooms, and closets shall be identified by room number only.

3.8.13.3.6 For Interior use, signage may be ¼-inch thick interior grade photopolymer with tactile copy and braille grade to meet the ADA code requirement. Room identification signage may be 1/8 inch thick with raster text and braille, provided signs comply with ADA requirements.

3.8.13.3.7 Developer shall be responsible for any electrical connected signage required by applicable Law as well as for any signage and labels for all equipment, pipes, connections, and other items within the following types of rooms/spaces/Area: mechanical, electrical, plumbing, IT, elevator, elevator mechanical rooms, and utility per applicable Law. All signage for fire pump rooms and fire departments connections signage shall meet the Designated Campus Fire Marshal's requests and requirements.

3.8.13.3.8 Signage standard installation is VHB and silicone. For Housing, signs shall be installed with (4) # Torx tamper proof hardware, pin Torx driver bid. Mounting shall be weather proof in exterior application.

3.8.13.3.9 Exterior Signage

All exterior signage shall comply with this Section 3.8.13 (Signage) and with all applicable Law. Exterior signage shall be ¼-inch thick exterior grade photopolymer with tactile copy and braille grade shall meet all ADA requirements. Exterior signage requirements do not apply to shuttle and tram signs. Developer shall provide six (6) signage kiosks at locations to be determined by the Owner during the design review process.

3.9 FF&E

3.9.1 FF&E and Autoclave Equipment Costing

Appendix 19 (FF&E and Autoclave Equipment Costing) of the Technical Requirements sets forth both the FF&E specified in Appendix 7 (FF&E Packages) and the autoclave equipment specified in Appendix 6 (Area Data Sheets) of the Technical Requirements, together with items, quantities and costing based on (i) the Original FF&E Cost; and (ii)

the D&C FF&E Cost. Developer shall procure and install FF&E and autoclave equipment having a value equal to the D&C FF&E Cost. The specific FF&E and autoclave equipment that Developer shall procure and install may vary from that listed in the “Items & Quantities based on D&C FF&E Cost” column in Appendix 19 and shall be determined in accordance with this Section 3.9.1. Within 60 days following the Effective Date, Developer shall submit to the Owner detailed recommendations in writing for alternate or substitute products of similar quality as those specified in Appendix 19 (FF&E and Autoclave Equipment Costing) that are commonly used in the higher education sector, together with applicable product data sheets and unit pricing (collectively, the “**FF&E Submittal**”). Following receipt from Developer and review by the Owner of the FF&E Submittal, the Owner will propose adjustments to the quantities and types of FF&E and autoclave equipment specified in Appendix 19 that results in an aggregate price of FF&E (inclusive of mark-ups) equal to the D&C FF&E Cost. The Parties shall cooperate in good faith and work diligently to reach agreement on such adjustments, and the Parties shall execute a written amendment of Appendix 6 (Area Data Sheets) and Appendix 7 (FF&E Packages) of the Technical Requirements in accordance with Section 26.1 of the Agreement to reflect the final agreement of the Parties.

3.9.2 Procurement and Installation of FF&E

3.9.2.1 Developer shall provide all framing, supports, restraints, gasketing and sealants, and all connections to building systems for FF&E. FF&E shall be placed or installed, as applicable, to allow for easy access for maintenance, repair, cleaning and replacement.

3.9.2.2 Developer shall place or install, as applicable, the FF&E listed in Appendix 7 (FF&E Packages) of the Technical Requirements in the Areas in accordance with the applicable FF&E package as specified in Appendix 1-B (Program Elements) of the Technical Requirements. Developer shall place or install, as applicable, in the Areas in consultation with the Owner. The quantities and types of FF&E listed in Appendix 7 (FF&E Packages) are subject to adjustment in accordance with Section 3.9.1 (FF&E and Autoclave Equipment Costing) of the Technical Requirements.

3.9.2.3 Except where the applicable FF&E package specifies “No Substitution” for FF&E, Developer may install FF&E of equal or better quality and specifications than the FF&E described in Appendix 7.

3.9.2.4 Developer shall keep an inventory and a record of all FF&E placed or installed within each Facility. The FF&E records shall include an item number and location. The FF&E records and related information shall be included in the PMCS, in Microsoft Excel format, and provided to the Owner Occupancy Readiness of each Facility.

3.10 ANCILLARY SITE CONDITION PROJECT FINAL ACCEPTANCE

Prior to the Project Final Acceptance Date, Developer shall remove all equipment, containers and Project Waste from the Ancillary Site and perform all Work necessary to

ensure the Ancillary Site is left in a clean and safe condition, including capping all Utilities.

3.11 OCCUPANCY READINESS

3.11.1 Cleaning at Occupancy Readiness and Substantial Completion

Upon Occupancy Readiness of each Facility and upon Substantial Completion, Developer shall promptly remove from the Facility and the Project Site, as applicable:

- (a) all Developer's equipment utilized during the performance of the Construction Work;
- (b) all temporary structures;
- (c) all surplus material; and
- (d) all waste and rubbish.

3.11.1.1 The Project Site and Facilities shall be left in a neat and clean condition to the satisfaction of the Owner's Authorized Representative.

3.11.1.2 Developer shall:

- (a) clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish glass and glossy surfaces, vacuum carpeted and soft surfaces, broom clean other interior spaces;
- (b) clean equipment and fixtures to a sanitary condition, clean permanent filters and replace disposable filters of mechanical equipment operated during the performance of the Construction Work;
- (c) clean ducts, blowers and coils of systems operated without filters during the performance of the Construction Work;
- (d) vacuum and wipe sides of electrical panels and cabinetwork;
- (e) comply with manufacturer's instructions for cleaning of the various systems, materials or installations;
- (f) clean Project Site, sweep paved areas, and rake clean ground surfaces;
- (g) remove stains and dirt from wall and ceiling surfaces and trim;
- (h) disinfect, clean and polish all plumbing fixtures;

- (i) use cleaning materials and methods that will not create hazards to health or property or cause damage to installed systems, products or materials;
- (j) remove temporary tapes, wrapping, coatings, paper labels, and similar items; and
- (k) dust, mop, wash or wipe exposed and semi-exposed surfaces as necessary.

3.11.2 Commissioning

Developer shall provide commissioning services in respect of all Facility Systems for each Facility prior to Occupancy Readiness in accordance with Section 5.2.1.4 of the Agreement, 2013 California Green Building Standards, and in respect of all Facilities assessed as a whole prior to Substantial Completion in accordance with Section 4.9.2.1.4 of the Agreement.

3.11.3 Commissioning Professional

3.11.3.1 Developer shall engage the services of a Commissioning Professional having a technical background and in depth expertise with the commissioning process including verification techniques, functional performance testing, system equipment and operation and maintenance knowledge of the Facilities Systems (the "**Commissioning Professional**").

3.11.3.2 At a minimum, the Commissioning Professional must be a person that specializes in the commissioning of building systems, including building envelope, and infrastructure and meets the following criteria, at a minimum:

- (a) A minimum of eight (8) cumulative years of experience in one or more of the following for projects of similar size, complexity and is an accredited qualified commissioning process provider:
 - (i) kitchen facility commissioning;
 - (ii) building mechanical, plumbing or electrical system construction project management;
 - (iii) building mechanical, plumbing or electrical system coordination services for a contractor;
 - (iv) laboratory equipment commissioning;
 - (v) photovoltaic systems; and
 - (vi) solar hot water heating.
- (b) Registration as a professional engineer with the State of California Board of Professional Engineers, Land Surveyors, and Geologists;

- (c) Certification from the Building Commissioning Association;
- (d) Certification from the National Environmental Balancing Bureau;
- (e) Certified commissioning professional and/or certification from Building Systems Commissioning;
- (f) Documented experience in commissioning authority in at least two (2) building projects;
- (g) Documented experience in one (1) LEED CLV2009 project; and
- (h) Knowledge of ASHRAE standards 90.1-2007 and 62.1-2007.

3.11.3.3 Developer shall ensure that the Commissioning Professional takes the lead role on behalf of Developer for coordinating the commissioning process in accordance with Section 3.11.4.1 of the Technical Requirements.

3.11.3.4 The Commissioning Professional may be a Developer-Related Entity.

3.11.4 Commissioning Plan

3.11.4.1 General Requirements

Developer shall prepare and submit to the Owner, no later than 30 days prior to the commencement of the commissioning process, a detailed Commissioning Plan for each Facility for the conduct of Commissioning Tests that will ensure:

- (a) the planning, design, construction and operational processes have achieved their intended outcome;
- (b) all stakeholders understand their responsibilities for Commissioning Tests prior to the Occupancy Readiness of applicable Facility;
- (c) all Users will be fully familiar with the Facility Systems and will understand their continuous role in its efficient operation; and
- (d) the prerequisite for fundamental commissioning of building energy systems and enhanced commissioning credit are met to help with the intended LEED Gold Certification for all facilities.

3.11.4.2 Commissioning Plan Preparation

The preparation of the Commissioning Plan shall begin as early as practicable in the design process and shall be submitted to the Owner during the design phase and finalized prior to construction beginning. Table 3.11.4.2 (Minimum Systems and Issues to be Captured in Commissioning Plan) below provides a minimum systems and issues to be included in the Commissioning Plan.

Category	Requirement
Energy	Meets required goals for energy efficiency as specified in <u>Appendix 17</u> (Energy Utilities Management) of the Agreement)
LEED® and sustainability	Meets all sustainability requirements specified in the Contract Documents
BMS interface	BMS system is interfaced with Owner's Infrastructure and is reporting accurately
Fire protection and life safety	All fire protection and life safety systems work as required and in accordance with the Contract Documents
Mechanical systems	All mechanical systems work as required and in accordance with the Contract Documents
Electrical systems	All electrical systems, interior and exterior, work as required and in accordance with the Contract Documents
Plumbing systems	All plumbing systems work as required and in accordance with the Contract Documents and applicable law.
Safety and Security systems	All Security systems work as required and in accordance with the Contract Documents.
IT/AV systems	All IT/AV Systems work as required and in accordance with the Contract Documents
Emergency Response systems	All Emergency Response Systems work as required and in accordance with the Contract Documents
Customer Service Center	Customer Service Center system and protocols work as intended and Developer is able to discern among calls related to the Existing Campus and calls related to the Project Site and allocate as appropriate
Wireless Systems Predictive Survey	All wireless systems will work as required and in accordance with these Contract Documents.
Central Plant Expansion	Developer shall prepare a CPE Commissioning Plan in accordance with <u>Section 3.11.9.4</u> of the Technical Requirements and commission of the expanded Central Plant in accordance with <u>Section 3.11.9</u> (Central Plant Expansion Commissioning Requirements) of the Technical Requirements.

Table 3.11.4.2: Minimum Systems and Issues to be Captured in Commissioning Plan

3.11.4.3 Commissioning Tests Description

3.11.4.3.1 The Commissioning Plan shall provide for commissioning tests (the “Commissioning Tests”) relating to the following to be conducted with respect to Facility Systems:

- (a) installation verification and quality checks;
- (b) prefunctional testing;

- (c) start-up;
- (d) functional testing;
- (e) demonstration testing;
- (f) representative sampling, where appropriate;
- (g) acceptance reports;
- (h) deficiency documentation and correction process; and
- (i) user instruction, where appropriate.

3.11.4.3.2 Wireless Systems Predictive Survey:

- (a) Developer shall conduct a predictive survey based on Building designs. The survey software shall incorporate the floor plan, ceiling types, wall composition, and major Building components and Infrastructure which may affect data wireless transmissions. The survey shall incorporate the number of Users which will connect to the wireless network in any given Area. Refer to the Area Data Sheets for coverage requirements on a per Area basis. In general, assume two (2) wireless devices per person (based on total occupancy) with coverage at 5GHz with measured reception NLT -65DBm unless noted otherwise in the Area Data Sheets.
- (b) Developer shall provide graphical results for the Owner's review and comment installation.
- (c) Following construction, Developer shall resurvey the Buildings to verify the coverage provided meets the requirements stipulated herein.

3.11.4.4 Training, Orientation and Owner Operations Testing

3.11.4.4.1 The Commissioning Plan shall specify Developer's processes and activities for coordinating with the Owner to provide the Owner, the Owner's advisors and Owner's personnel with the opportunity to inspect, test and operate the Facility and certain of its systems and equipment as follows:

- (a) BMS interface;
- (b) Security systems;
- (c) Fire protection and life safety systems;
- (d) IT Systems;
- (e) A/V systems;

- (f) Emergency response systems;
- (g) Parking access systems;
- (h) Laboratory equipment;
- (i) Dining facility and kitchen equipment; and
- (j) Customer Service Center equipment to the extent of the interface with the Existing Campus and Campus Activities.

3.11.4.4.2 The Commissioning Plan shall specify Developer's processes and activities for providing orientation, classroom and field training for Users identified by the Owner prior to Occupancy Readiness, such training to be acceptable to the Owner, in its reasonable discretion. Such training and orientation shall include, among other things: Security Systems, AV systems, communications systems, IT Systems and fume hoods installed by Developer. Additional orientation, classroom and field training on other specific requirements regarding building orientation and security and communications systems for the UC Merced Police Department shall also be provided by Developer, as requested by the Owner, in its reasonable discretion. Training and orientation programs delivered by Developer shall include recorded media for demonstration where appropriate.

3.11.4.4.3 As part of the commissioning process for the Central Plant Expansion, Developer shall train the Owner's staff on the operation and maintenance of the expanded Central Plant. Developer shall develop and submit to Owner for Owner's review and approval a training program detailing training procedures for Owner's staff. The training program shall be submitted to Owner as part of the fifty percent (50%) CD submittal identified in Appendix 4-C (Central Plant Expansion Submittals) of the Technical Requirements.

3.11.4.5 Preparation of Operating and Maintenance Manuals

The Commissioning Plan shall provide for preparation of operating and maintenance manuals by Developer for each Facility System, notwithstanding the fact that Developer shall be responsible for such operation and maintenance during the Term.

3.11.4.6 Commissioning Plan Contents

The Commissioning Plan shall:

- (a) identify the names, roles, and where appropriate, the qualifications of all persons proposed to perform a role in the commissioning process;
- (b) contain provisions which ensure successful completion of all Commissioning Tests and all other commissioning activities required for the proper commissioning of the Facility System and the Facilities overall, to the satisfaction of the Owner;

- (c) contain provisions which will ensure successful completion of all Commissioning Tests and other commissioning activities as a condition to Occupancy Readiness for each Facility and as a condition to Substantial Completion of the Project, to the satisfaction of the Owner;
- (d) contain provisions which will ensure employment by Developer of commissioning procedures that are prescribed by applicable Law using methodologies so prescribed and methodologies prescribed in the Contract Documents;
- (e) contain provisions which will ensure that standards or results to be achieved in each test, for such tests to be successful, shall satisfy all standards or results applicable to such Commissioning Tests as contained in the Contract Documents and those recommended by the applicable manufacturer;
- (f) contain provisions which ensure that the Commissioning Plan shall not propose a test or procedure that deviates from any procedure, standard, or specification intended by the Contract Documents unless specifically approved in writing by the Owner;
- (g) contain provisions which require that all Commissioning Tests results and copies of all certificates and Governmental Approvals received by Developer in connection with any Commissioning Tests shall be provided to the Owner;
- (h) not create additional obligations on Owner or Owner's Authorized Representative;
- (i) contain an achievable schedule for the Commissioning Tests which shows the name, timing and dependencies of each step in the critical path schedule to achieve Occupancy Readiness and Substantial Completion;
- (j) ensure that the prescribed prerequisites and credits necessary for the intended LEED Gold Certification can be achieved; and
- (k) contain provisions providing that where Commissioning Tests have been successfully completed as required by the approved Commissioning Plan and where such Commissioning Tests are identical to Commissioning Tests that are required to satisfy any subsequent approved Commissioning Plan requirement and such test would be redundant, the Commissioning Tests do not need to be repeated unless specifically required by a Governmental Entity or Applicable Law.

3.11.4.7 Commissioning Plan Structure

The structure of the Commissioning Plan shall be as set forth in Table 3.11.4.7 (Commissioning Plan Structure).

Section	Description
Commissioning Scope	The Commissioning scope including which Project assemblies, systems, subsystems and equipment will be tested
Team Contacts	The Commissioning Professional's contact information as well as any other relevant Commissioning team member's contact information
Communication Plan and Protocols	Documentation of the communication channels to be used throughout the Project with respect to Commissioning Tests
Commissioning Process	Detailed description of the specific commissioning tasks to be accomplished
Commissioning Documentation	List of Commissioning Test documents required to identify expectations, track conditions and decisions and validate/certify performance
Commissioning Schedule	Specific sequences of events and relative timeframes, dates and durations

Table 3.11.4.7: Commissioning Plan Structure

3.11.5 Commissioning for LEED Certification

3.11.5.1 LEED Requirements Preparation

Developer shall ensure that the commissioning process activities comply with the prerequisite criteria for fundamental commissioning of building energy systems and the Enhanced Commissioning Credit to achieve LEED Gold Certification.

3.11.5.2 LEED Requirements and the Commissioning Plan

In accordance with all applicable LEED commissioning tests requirements, the following items shall be addressed in the Commissioning Plan: (i) independent review of schematic design documents; (ii) independent review of construction documents; (iii) focused review of Developer submittals to verify compliance with requirements; (iv) an indexed systems manual; and (v) post-Occupancy Readiness review of the Project's systems Commissioning During Construction.

3.11.5.3 Construction Responsibilities

During the course of construction activities the commissioning goal shall be to assure the levels of quality required by the Contract Documents are satisfied. The commissioning activities during construction shall be a well-orchestrated quality assurance process and shall be set forth in the Commissioning Plan, and shall include:

- (a) submittal verification;

- (b) installation verification;
- (c) pre-functional testing;
- (d) start-up;
- (e) functional performance testing;
- (f) demonstration testing; and
- (g) training.

3.11.5.4 Construction Compliance with the Contract Document

Developer shall ensure that the Commissioning Professional reviews the construction process for compliance with the Contract Documents. Developer shall ensure compliance with the Contract Documents.

3.11.5.5 Functional Performance Tests

Functional performance testing occurs after the Facility Systems have been installed and the construction checklists have been completed. Functionally testing the Facility Systems as a whole evaluates the ability of the Facility Systems to work together to achieve compliance with the Contract Documents. The functional performance tests are the most important aspect of the commissioning process and system troubleshooting based upon such tests shall be a critical function of the Commissioning Professional. If the Commissioning Professional discovers equipment or systems that are not performing in accordance with the Contract Documents prior to Occupancy Readiness, Developer shall correct and re-test such equipment or systems pursuant to Section 3.11.2 (Commissioning) of the Technical Requirements.

3.11.6 Performance of Commissioning Tests

3.11.6.1 Notice and Execution of Tests

Under the direction of the Commissioning Professional, appropriately qualified personnel of Developer shall implement all Commissioning Tests as set forth in the Commissioning Plan. Developer shall give a minimum of 30 days-notice to, and shall invite the Owner to witness and to comment on each aspect of the Commissioning Tests up until all Commissioning Tests are fully complete. Developer shall, together with such notice to the Owner, provide Owner with all information Owner may reasonably require in relation thereto, including, without limitation: (i) tests proposed; (ii) test methodology; and (iii) expected test results. In addition, the Owner shall be provided with full and reasonable access to all Commissioning activities to ensure they remain fully informed of the process.

3.11.6.2 Test Results

In respect of each Facility at Occupancy Readiness and in respect of the Facilities overall at Substantial Completion, within 15 Business Days following the last day of the

Commissioning Tests performed pursuant to this section, Developer shall provide the Owner with ten copies of a written Commissioning Test report setting forth the results of such Commissioning Tests, certified as true, complete and correct by Developer.

3.11.6.3 Commissioning Professional Not to Perform Tests

The Commissioning Professional shall not perform any of the Commissioning Tests and the Commissioning Professional's actions shall not resolve Developer from any of Developer's obligations under the Agreement.

3.11.7 Other Commissioning Activities

Other commissioning activities to be performed by Developer shall include but not be limited to:

- (a) initiation of the Customer Service Center operation and orientation of Project;
- (b) review of Developer's emergency procedure and coordination with the Owner's police department;
- (c) review of Developer's life safety and Security Systems with Police and Fire;
- (d) coordination with the IT/AV Systems with the Owner's equipment; and
- (e) preparation of a final commissioning report for each Building.

3.11.8 Facility Systems Manuals

With the Commissioning Plan for each Facility, Developer shall prepare and submit to Owner operations and maintenance manuals for each Facility System to be commissioned ("Facility Systems Manuals"). Such Facility Systems Manuals are for informational purposes only and are not subject to Owner's approval. Each Facility Systems Manual shall:

- (a) describe the activities, procedures and information necessary to operate and maintain the Facility Systems;
- (b) include all manufacturers' manuals for maintenance and/or operations for each Facility System, to the extent that such manufacturers' manuals have been published by such manufacturer, regardless of the date of installation of such Facility System. Such manufacturers' manuals shall specifically apply to the Facility System installed within each Facility; and
- (c) manufacturers' documentation for all original warranties provided by such manufacturers of each Facility System.

3.11.9 Central Plant Expansion Specific Commissioning Requirements

3.11.9.1 CPE Commissioning General Requirements

Developer shall implement a commissioning process for the Central Plant Expansion and the Central Plant in accordance with this Section 3.11.9 (the “**CPE Commissioning Process**”) and shall ensure, as a condition precedent to Occupancy Readiness of the Central Plant Expansion, that the expanded Central Plant is fully operational and commissioned in accordance with the Technical Requirements, Best Management Practices, and applicable Law.

3.11.9.1.1 General

- (a) The Owner’s Authorized Representative shall be Developer’s point of contact for all Central Plant related coordination with the Owner.
- (b) Developer shall engage the services of a CPE Commissioning Firm in compliance with the requirements of Section 3.11.9.1.2 (Qualifications of the CPE Commissioning Firm) of these Technical Requirements.
- (c) Developer shall engage the services of a CPE Commissioning Specialist in compliance with the requirements of Section 3.11.9.1.3 (Qualifications of the CPE Commissioning Specialist) of these Technical Requirements.
- (d) Developer shall ensure that the CPE Commissioning Specialist takes the lead role in the CPE Commissioning Process.
- (e) Developer shall establish a commissioning team (the “CPE Commissioning Team”) composed of the CPE Commissioning Specialist; the Owner’s Authorized Representative; Developer-Related Entities, as related to the CPE Commissioning Process and installation of required systems, Developer’s TAB contractor, and Developer’s designated QA/QC personnel for the CPE.
- (f) With the exception of the Owner’s Authorized Representative, Developer shall provide all qualified personnel, as required by the CPE Commissioning Process, to participate, perform and/or witness CPE Commissioning Process.
- (g) Developer shall provide all tools, materials and equipment required for the commissioning of the expanded Central Plant.
- (h) Developer shall perform all aspects of CPE Commissioning Process in accordance with the requirements of the standards or guidelines under which the CPE Commissioning Firm qualifications or Commissioning Specialist qualifications are certified as set forth in Section 3.11.9.1.2(a)(iii) below, Best Management Practices, and these Technical Requirements.

- (i) Developer shall not proceed with any testing associated with the CPE Commissioning Process if the required CPE commissioning prerequisites for each commissioning level have not been completed, as defined in Section 3.11.9.9 (Implementation of CPE Commissioning Process) and as set forth in the CPE Commissioning Schedule.
- (j) Where the instrument manufacturer calibration recommendations are more stringent than the requirements of this Section 3.11.9, the manufacturer's recommendations shall prevail and be implemented by Developer.
- (k) Developer shall define the sequence of operations of the expanded Central Plant and assist the Owner with implementation of the sequence of operations after completion of the Central Plant Expansion Work in accordance with Section 3.5.7 (Central Plant Expansion) of these Technical Requirements.

3.11.9.1.2 Qualifications of the CPE Commissioning Firm

- (a) Developer shall engage a commissioning firm (the "CPE Commissioning Firm") that has, at a minimum, the following qualifications:
 - (i) performed the commissioning, at a minimum, of three (3) buildings and corresponding systems of similar scope and complexity to the Central Plant Expansion;
 - (ii) has an agreement directly with Developer and be financially and corporately independent of all other Developer-Related Entities; and
 - (iii) be certified by a commissioning certifying entity, including AABC Commissioning Group (ACG), Building Commissioning Association, National Environmental Balancing Bureau, and Sheet Metal and Air Conditioning Contractor's National Association (SMACNA).
- (b) Developer shall obtain and keep on record through the PMCS the CPE Commissioning Firm's certification demonstrating the date in which the certification was initially granted and the date when the current certification expires. Any lapses in the certification of the proposed Commissioning Firm or disciplinary action against such firm by any agency or entity that provides commissioning guidelines shall be described in detail.

3.11.9.1.3 Qualifications of the CPE Commissioning Specialist

- (a) Developer shall engage a commissioning specialist (the “CPE Commissioning Specialist”) that has, at a minimum, the following qualifications:
 - (i) is an employee of the CPE Commissioning Firm;
 - (ii) performed the commissioning, at a minimum, of three (3) buildings and corresponding systems of similar scope and complexity to the Central Plant Expansion; and
 - (iii) is certified by the same commissioning certifying entity under which the CPE Commissioning Firm is certified.
- (b) Developer shall obtain and keep on record through the PMCS the CPE Commissioning Specialist’s certification demonstrating the date in which the certification was initially granted and the date when the current certification expires. Any lapses in the certification of the proposed Commissioning Specialist or disciplinary action against such firm by any agency or entity that provides commissioning guidelines shall be described in detail.

3.11.9.1.4 Development and Implementation of CPE Commissioning Process

Developer shall engage the services of and work with the CPE Commissioning Firm, and the CPE Commissioning Specialist as the representative of such CPE Commissioning Firm, to:

- (a) perform commissionability reviews of all CPE Submittals set forth in Appendix 4-C (Central Plant Expansion Submittals) for the design and construction of the Central Plant Expansion;
- (b) develop the CPE Commissioning Plan, CPE Commissioning Schedule, CPE Systems Manual, and obtain all documentation required for the development of such documents;
- (c) develop all required procedures for the testing of CPE systems to be implemented during the CPE Commissioning Process in accordance with these Technical Requirements, and supervise and/or witness, as required, the implementation of such CPE Commissioning Tests;
- (d) develop all CPE Pre-Functional Checklists and ensure the completion and submittal of such checklists by Developer-Related Entity responsible for the installation and testing of each CPE system;

- (e) develop and implement the CPE Commissioning Log in compliance with Section 3.11.9.7.3 (CPE Commissioning Log) of these Technical Requirements;
- (f) conduct CPE Commissioning Meetings throughout the duration of the performance of the CPE Work in compliance with Section 3.11.9.8 (CPE Commissioning Meetings) of these Technical Requirements; and
- (g) develop and submit the final CPE commissioning report to the Owner.

3.11.9.1.5 CPE Designer of Record

During the performance of the CPE Commissioning Process, Developer shall ensure the participation of its Engineer of Record responsible for the Design Work of the Central Plant Expansion (the “CPE Engineer of Record”). At a minimum, the CPE Engineer of Record shall:

- (a) assist and support Developer and the CPE Commissioning Specialist during the CPE Commissioning Process;
- (b) participate in select CPE Commissioning Meetings as requested by Developer or the Owner’s Authorized Representative;
- (c) collaborate with Developer and the CPE Commissioning Specialist in the development of the CPE Commissioning Plan, CPE Commissioning Schedule and CPE Systems Manual;
- (d) collaborate or review, as required by Developer, all CPE commissioning procedures as developed by the CPE Commissioning Firm, CPE Commissioning Tests results and testing and balancing (TAB) submittals for conformance with the Technical Requirements;
- (e) participate as requested by Developer, CPE Commissioning Specialist or the Owner’s Authorized Representative, in the CPE Commissioning Process; and
- (f) as required by the CPE Commissioning Process for the proper functionality of CPE systems and provide recommendations on inconsistencies or deficiencies in CPE system operations and compliance with these Technical Requirements.

3.11.9.1.6 CPE Commissioning LEED Requirements

Developer shall provide documentation that meets the LEED Energy and Atmosphere (EA) Prerequisite 1 Fundamental Commissioning, and EA Credit 3 Enhanced Commissioning. The CPE Commissioning Firm shall prepare the documents required for EA credit 3 which are indicated to be prepared by the Commissioning Authority.

3.11.9.2 CPE Training Sessions

3.11.9.2.1 Developer shall develop, coordinate and provide to Owner's staff, training sessions on the operations, maintenance and management of the Central Plant Expansion (the "CPE Training Sessions").

3.11.9.2.2 All CPE Training Sessions shall be approved by CPE Commissioning Specialist.

3.11.9.2.3 Sixty (60) days prior to the commencement of CPE Training Sessions, Developer shall submit an agenda for each CPE Training Session to the Owner detailing the following areas:

- (a) equipment;
- (b) intended audience;
- (c) location of training;
- (d) objectives;
- (e) subjects covered, including description, duration of discussion, and any special methods;
- (f) duration of training on each subject;
- (g) instructor for each subject; and
- (h) training methodology for each subject.

3.11.9.2.4 In addition to the requirements set forth in the preceding Section 3.11.9.2.3, Developer shall submit to Owner a CPE Training Session schedule. Developer shall schedule all commissioning milestones and related commissioning activities that must be achieved prior to commencing the commissioning levels set forth in Section 3.11.9.9 (Implementation of CPE Commissioning Process).

3.11.9.2.5 CPE Training Sessions shall commence, as appropriate, with classroom sessions followed by hands-on demonstration/training on each CPE system or CPE system component.

3.11.9.2.6 Classroom sessions shall include the use of overhead projections, slides, video/audio-taped material as appropriate.

3.11.9.2.7 In the event any CPE system fails to perform in accordance with the Technical Requirements during any orientation or demonstration provided as part of the CPE Training Sessions, Developer shall repair or adjust such CPE system as necessary within five (5) days of the discovery of such failure, and reschedule such demonstration within five (5) days or such repairs or adjustments.

3.11.9.2.8 Developer shall coordinate with the equipment or system manufacturer so that the manufacturer's representative provides the training on each major piece of equipment, unless otherwise approved by Owner.

3.11.9.2.9 In addition to the controls training, the controls contractor shall attend any session necessary to discuss the interaction of the controls system as it relates to the equipment being discussed.

3.11.9.2.10 CPE Training Sessions shall follow the outline in the table of contents of the operation and maintenance manual for each specific element or piece of equipment, as provided by the manufacturer, and illustrate the use of such operations and maintenance manuals for reference.

3.11.9.2.11 CPE Training Sessions shall include:

- (a) the use of the printed installation, operation and maintenance instruction material included in the operations and maintenance manuals for each element or piece of equipment;
- (b) an orientation in the safe utilization, operations and maintenance of such CPE equipment and elements;
- (c) an orientation on preventative maintenance and any special tools required for the operations, management and maintenance of such CPE equipment and elements;
- (d) spare parts inventory recommendations;
- (e) startup and operations in all modes possible, shutdown, seasonal changeover and any emergency procedures, including manual shutdown procedures, alarms operation and power failures;
- (f) discussion of relevant health and safety issues and concerns;
- (g) discussion of warranties and guarantees;
- (h) common troubleshooting problems and solutions;
- (i) explanatory information included in the respective operations and maintenance manuals; and
- (j) discussion of any specific requirements of equipment installation or operation.

3.11.9.2.12 Developer shall fully explain and demonstrate the operation, function and overrides of any local packaged controls not controlled by the central control system.

3.11.9.2.13 At the discretion of Developer and its CPE Commissioning Specialist, training may occur before performance testing is complete if required by the Facility operators to assist in the performance of CPE Commissioning Tests.

3.11.9.2.14 Professional video recording of the training classroom sessions and equipment demonstrations shall be provided to Owner. Developer shall engage a qualified commercial videographer to record demonstration and training sessions. Each training session shall be recorded separately. Each recorded session shall be reviewed and edited for sound and video quality by the videographer prior to submission. Developer shall submit to Owner all CPE Training Sessions video recordings in a format as agreed by Developer and Owner. Owner staff and/or specific building identifying images must not be included in the recording. In addition, factory training videos identifying key troubleshooting, repair, service and/or replacement techniques must be provided by the vendor/manufacturers and reviewed with Owner.

3.11.9.3 CPE Systems to be Commissioned

3.11.9.3.1 Developer shall include all labor, equipment and material as required to perform the CPE Commissioning Process, as set forth in this Section 3.11.9 (Central Plant Expansion Specific Commissioning Requirements).

3.11.9.3.2 Developer's CPE Commissioning Specialist shall identify non-critical equipment in Table 3.11.9.3.3 (CPE Systems to be Commissioned). Non-critical equipment shall be eligible for a quality based sample strategy determined by the CPE Commissioning Specialist, in collaboration with the Owner's Authorized Representative.

3.11.9.3.3 Table 3.11.9.3.3 (CPE Systems to be Commissioned) includes allowable failure limits with sampling percentages for each system or element. All failures shall be retested until reducing or eliminating such failure in accordance with such failure limits. The failure limit indicates the maximum percentage of the functional tested devices that may fail before an entirely new sample must be tested of the same size as the initial sample. When the maximum number of failures is reached, testing on that sample shall be terminated and retesting of such element shall be scheduled.

Systems	Description	FPT Sample Rate	FPT Failure Limit
a. HVAC	New or Modified electrical systems that form part of Developer's proposed solution shall be tested in line with the following criteria:		
	(1) Chilled Pumps Piping	100%	0%
b. Energy Management and Control System	(1) DDC System – Central Plant Chilled Water System controls	100%	0%
c. Electrical Distribution System and Power Quality	New or Modified electrical systems that form part of Developer's proposed solution shall be tested in line with the following criteria:		
	(1) SCADA	100%	0%
	(2) Generators	100%	0%
	(3) Paralleling Switchgear	100%	0%
	(4) Medium Voltage Substation	100%	0%

Systems	Description	FPT Sample Rate	FPT Failure Limit
	(5) Low Voltage Substation	100%	0%
	(6) Low Voltage Switchgear	100%	0%
	(7) Motor Control Centers	100%	0%
	(8) Variable Frequency Drives	100%	0%
	(9) Protective Relays	100%	0%
	(10) Circuit Breakers	100%	0%
	(11) Switchboards	100%	0%
	(12) Secondary Electrical Service Systems	100%	0%
	(13) Transformers	100%	0%
	(14) Conductors	100%	0%
	(15) Grounding	100%	0%
	(16) Panelboards	100%	0%
	(17) Lighting Protection	100%	0%
	(18) Power Quality Meters	100%	0%
	(19) UPS Modules and Systems	100%	0%
	(20) Batteries	100%	0%
	(21) Automatic Transfer Switches	100%	0%
	(22) Manual Transfer Switches	100%	0%
	(23) Static Transfer Switches	100%	0%
	(24) Emergency Power Off	100%	0%
d. Building Enclosure System	(1) Air Barrier	100%	0%
	(2) Waterproofing (Vertical, Horizontal)	100%	0%
	(3) Roofing System	100%	0%
	(4) Curtain Wall and Storefront Systems	100%	0%
	(5) Windows, Doors, Glazed Walls	100%	0%

Systems	Description	FPT Sample Rate	FPT Failure Limit
	(6) Joint Sealants	100%	0%

Table 3.11.9.3.3: CPE Systems to be Commissioned

3.11.9.4 CPE Commissioning Plan

Developer's CPE Commissioning Specialist shall develop and submit to Owner a commissioning plan for the Central Plant Expansion (the "CPE Commissioning Plan"). The CPE Commissioning Plan shall, at a minimum, include and describe in detail the following topics:

- (a) CPE commissioning objectives;
- (b) CPE Commissioning Team members and corresponding roles and responsibilities for each;
- (c) CPE systems to be commissioned;
- (d) CPE Commissioning Process as set forth in this Section 3.11.9 (Central Plant Expansion Specific Commissioning Requirements), including:
 - (i) detailed description of the CPE Commissioning Process;
 - (ii) detailed Pre-Functional Checklists;
 - (iii) detailed CPE Commissioning Test procedures, including a step-by-step explanation of such procedures and expected results;
 - (iv) guidelines for acceptance of each piece of equipment or system. Expected results for each test must be included;
 - (v) detailed thermal and electrical load bank plan showing the quantity, type, sizes, location, installation and safety requirements of all load banks (the "Load Bank Plan"); and
 - (vi) details on when and how much load shall be applied during each level of commissioning;
- (e) CPE Commissioning Schedule developed by the CPE Commissioning Specialist that shall demonstrate the CPE Commissioning Process at the commissioning activities level and divided on a systems basis and including time and resources to each commissioning level (the "CPE Commissioning Schedule");
- (f) CPE commissioning documentation requirements; and

- (g) communication & reporting protocols.

3.11.9.5 CPE Systems Manual

Developer's CPE Commissioning Specialist shall develop a manual that explains the operations, maintenance and management of such CPE systems (the "CPE Systems Manual"). Such CPE Systems Manual shall be submitted to Owner as set forth in Appendix 4-C (Central Plant Expansion Submittals) of these Technical Requirements. The CPE Systems Manual shall include the following:

- (a) index of CPE Systems Manual with notation as to content storage location if not in actual manual;
- (b) executive summary;
- (c) basis of design documents;
- (d) approved CPE Submittals;
- (e) list of recommended operational record-keeping procedures, including sample forms, logs, or other means, and a rationale for each;
- (f) comprehensive list of all final set points for all commissioned CPE systems;
- (g) ongoing optimization guidance;
- (h) operation and maintenance manuals (includes operating procedures for all normal, abnormal, and emergency modes of operation; maintenance procedures; parts and recommended spare parts list; troubleshooting guide; and systems schematics (one-line diagrams);
- (i) training materials; and
- (j) final CPE commissioning report.

3.11.9.6 CPE Commissioning Submittals

Developer shall prepare all the Central Plant Expansion Submittals set forth in Appendix 4-C (Central Plant Expansion Submittals) of these Technical Requirements, and submit to the Owner for review as described in Section 2.6.2 (Work Submittal Review Process).

3.11.9.7 CPE Commissioning Reporting Requirements

3.11.9.7.1 Progress Reports

At each CPE Commissioning Meeting, Developer shall submit to the CPE Commissioning Team a progress report detailing:

- (a) the CPE commissioning activities and tests performed on CPE systems within the last seven (7) days;
- (b) projected commissioning activities and tests for the next seven (7) days;
- (c) conflicts or issues found during the commissioning activities performed within the last seven (7) days along with corresponding resolution;
- (d) a comparison between the CPE Commissioning Schedule and completed CPE commissioning activities as of the date of such CPE Commissioning Meeting and, in the event the CPE Commissioning Process is behind the projected schedule as defined in the CPE Commissioning Schedule, an explanation of the reason for such delay and actions to be taken to mitigate any impacts caused by such delay; and
- (e) any other pertinent information relating to the CPE Commissioning Process.

3.11.9.7.2 CPE Commissioning Report

Developer shall prepare and submit to Owner a CPE commissioning report that includes a description of each level's commissioning activities and corresponding results. The CPE commissioning report shall initially be submitted for Level 1 commissioning activities and updated and resubmitted for each subsequent commissioning level as follows:

- (a) Initial Commissioning Report (Level 1): shall include the results of the Level 1 commissioning activities for the Central Plant Expansion and shall be submitted to Owner no later than 14 days after concluding all Level 1 commissioning activities.
- (b) Updated Commissioning Report (Level 2): shall include the results of the Level 2 commissioning activities for the Central Plant Expansion and shall be submitted to Owner no later than 14 days after concluding all Level 2 commissioning activities.
- (c) Updated Commissioning Report (Level 3): shall include the results of the Level 3 commissioning activities for the Central Plant Expansion and shall be submitted to Owner no later than 14 days after concluding all Level 3 commissioning activities.
- (d) Updated Commissioning Report (Level 4): shall include the results of the Level 4 commissioning activities for the Central Plant Expansion and shall be submitted to Owner no later than 14 days after concluding all Level 4 commissioning activities.

- (e) Updated Commissioning Report (Level 5): shall include the results of the Level 5 commissioning activities for the Central Plant Expansion and shall be submitted to Owner no later than 14 days after concluding all Level 5 commissioning activities.
- (f) Updated Commissioning Report (Black Start Test): shall include the results of the Black Start Test for the Central Plant Expansion and shall be submitted to Owner no later than three (3) days after completion of Black Start Tests.
- (g) Final CPE commissioning report: The Final Commissioning Report shall include all CPE Commissioning Process activities and the CPE Commissioning Tests performed including corresponding results for each commissioning level.

3.11.9.7.3 CPE Commissioning Log

- (a) Developer's CPE Commissioning Specialist shall develop and maintain a record of deficiencies discovered during the performance of the CPE Commissioning Process, including corresponding resolutions (the "CPE Commissioning Log"). The CPE Commissioning Log shall include:
 - (i) deficiencies, issues or failures to meet these Technical Requirements, or installation or functionality of CPE systems not in accordance with the manufacturer's specifications, as discovered during the performance of the CPE Commissioning Process and the CPE Commissioning Tests;
 - (ii) the resolution and disposition of such deficiencies and issues;
 - (iii) the date of final resolution for each deficiency or issue as confirmed by the CPE Commissioning Specialist;
 - (iv) a record of unique system characteristics and behaviors for use by the Owner's staff responsible for the operations, management and maintenance of the expanded Central Plant;
- (b) The CPE Commissioning Log shall be maintained by the CPE Commissioning Specialist and provided to the Authorized Owner's Representative as part of the CPE commissioning report.

3.11.9.7.4 CPE Pre-Functional Checklists

Developer's CPE Commissioning Specialist shall develop checklists for each commissioning level as described in Section 3.11.9.9 (Implementation of CPE Commissioning Process) (the "**CPE Pre-Functional Checklists**"). Developer shall

ensure the CPE Pre-Functional Checklist is completed by the CPE system installation contractor and shall include enough information to verify the required CPE system parts for such installation, the correct installation of such parts and the correct functionality of the CPE system in accordance with the manufacturer's specifications and these Technical Requirements. The CPE Pre-Functional Checklists shall be submitted to the Owner with the initial and all subsequent updates to the CPE commissioning report.

3.11.9.8 CPE Commissioning Meetings

Developer shall conduct monthly commissioning meetings during the performance of the CPE Commissioning Process (the "CPE Commissioning Meetings"). During the last six (6) months of such CPE Work, such meetings shall be held on a weekly basis and shall be dedicated to the commissioning of the CPE systems and CPE system components. The CPE Commissioning Meetings shall be led by Developer's CPE Commissioning Specialist.

3.11.9.9 Implementation of CPE Commissioning Process

3.11.9.9.1 CPE Commissioning Process General Requirements

- (a) The CPE Commissioning Firm's personnel performing or witnessing testing of electrical systems including distribution, generation, or SCADA, shall be trained and experienced concerning the CPE system being evaluated. These individuals shall be capable of conducting the tests in a safe manner and with complete knowledge of the hazards involved. Test technicians shall be certified in accordance with ANSI/NETA Standards for Certification of Electrical Testing Personnel.
- (b) Each CPE system specified to be commissioned shall be operated through all modes of system operation, including seasonal, occupied, unoccupied, warm-up, cool-down, fail-over testing and also including every individual interlock and conditional control logic, all control sequences, both full-load and part-load conditions and simulation of all abnormal conditions for which there is a specified system or controls response. The warm-up and cool-down test must be a performance test.
- (c) Operating equipment and systems shall be tested in the presence of the CPE Commissioning Specialist and the Owner's Authorized Representative to demonstrate compliance with manufacturer's specifications and these Technical Requirements.
- (d) Testing shall be conducted under specified design operating conditions or as recommended by CPE Commissioning Specialist.
- (e) All CPE system components shall be tested to demonstrate that each CPE system satisfies all manufacturer specifications and functions in accordance with these Technical Requirements. Testing shall be accomplished on a hierarchical basis, testing shall

commence at the CPE system component level, followed by sub-systems, followed by a complete CPE system.

- (f) Final equipment and system setpoints shall be provided with each completed CPE Commissioning Test.
- (g) All required resistive and reactive load banks and cabling shall be available and be sized appropriately for kW, voltage, discharge type, and shall have sufficient cable length and size.

3.11.9.9.2 CPE Commissioning Tests General Requirements

CPE Commissioning Test procedures for all CPE systems to be commissioned shall comply with the following requirements:

- (a) CPE Commissioning Tests procedures shall provide instructions as to how equipment, systems, and integrated systems will be tested to prove performance in accordance with these Technical Requirements.
- (b) Such CPE Commissioning Test procedures shall identify the staff that will perform such tests, any special communication devices requirements, and required instrumentation for the performance of such tests.
- (c) Each CPE Commissioning Test procedure shall include a CPE Pre-Functional Checklist for verification that proper calibration of all required instrumentation has been verified prior to test initiation.
- (d) Developer's CPE Commissioning Specialist shall examine the Construction Document CPE Submittal, develop detailed CPE Pre-functional Checklists, and detailed Functional Performance Test procedures and data forms. Developer shall verify, through the CPE Pre-functional Checklists, that the CPE systems are in compliance with the Construction Document CPE Submittal and are fully functional. Functional Performance Tests shall only begin when the CPE Pre-Functional Checklists have been completed, initialed, signed by the appropriate staff, contractors or vendors, and returned to Developer's CPE Commissioning Specialist.

3.11.9.9.3 CPE Commissioning Tests

The CPE Commissioning Tests shall be scheduled and performed in a logical and sequential manner in compliance this Section 3.11.9, Best Management Practices, and the following requirements:

- (a) Level 1 commissioning activities shall consist of and comply with the following requirements:

- (i) factory acceptance testing: testing of equipment, whether at the campus location or at the manufacturer's location, by manufacturer's staff;
 - (ii) factory acceptance testing shall be performed in the presence of Developer's CPE Commissioning Specialist and the Owner's Authorized Representative; and
 - (iii) four (4) weeks prior to the performance of such factory acceptance testing, Developer shall submit to Owner for review, the Level 1 commissioning activities to be performed and the schedule of such Level 1 activities.
- (b) Level 2 commissioning activities shall consist of and comply with the following requirements:
 - (i) receipt inspection checklist: Developer shall provide Owner with written confirmation that the equipment received from manufacturers or vendors is in accordance with the requirements of Section 3.5.7 (Central Plant Expansion) of these Technical Requirements, include required installation, operations and maintenance manuals, and is free from defect or damage; and
 - (ii) such receipt inspection checklists shall be completed by Developer and witnessed by Developer's CPE Commissioning Specialist. The CPE Commissioning Specialist shall record any issues and corrective actions in the CPE Commissioning Log.
- (c) Level 3 commissioning activities shall consist of and comply with the following requirements:
 - (i) Level 3 commissioning activities shall include: CPE Pre-Functional Checklist, electrical acceptance testing, CPE systems startup, EMCS/SCADA checkout and integration, fire alarm pretesting, and TAB;
 - (ii) system shall be checked for proper installation, and adjusted and calibrated to verify that it is ready to function as specified;
 - (iii) all system elements shall be checked to verify that they have been installed properly and that all connections have been made correctly;
 - (iv) all discrete elements and sub-systems shall be adjusted and checked for proper operation;

- (v) the CPE Pre-Functional Checklists shall be completed by Developer. The CPE Commissioning Specialist shall witness the completion of such CPE Pre-Functional Checklist; and
 - (vi) prior to the commencement of Level 4 commissioning activities of each system, Developer's CPE Commissioning Specialist shall verify that the physical installation of components and systems being tested is installed in accordance with these Technical Requirements.
- (d) Level 4 commissioning activities shall consist of and comply with the following requirements:
- (i) Functional Performance Testing: Developer's CPE Commissioning Specialist shall develop such Functional Performance Testing procedures to test the dynamic function and operation of equipment and systems using manual (direct observation) and monitoring methods;
 - (ii) systems shall be tested under all modes and configurations, and under a Day 1 Load;
 - (iii) systems shall be run through all the control system's sequences of operations and components verified to be responding as the sequences state;
 - (iv) tests shall demonstrate that system is operating and complying with specified performance requirements;
 - (v) Electrical functional performance testing shall verify that systems, subsystems and equipment function interactively and throughout the full range of operating conditions (e.g. low load, design load, component failures, alarm conditions, safety interlocks including with life safety systems, etc.) and modes (e.g. normal shutdown, normal auto position, normal manual position, power failure including control power, emergency power, unoccupied, fire alarm, etc.). The systems shall be tested through all the control system's sequences of operation and components are verified to be responding as the sequences state. Positive confirmation of state/status shall be shown both locally and via the SCADA;
 - (vi) Temporary upsets of systems, such as distribution fault, control loss, setpoint change, equilibrium upset and component failure, shall be imposed at different operation loads to determine system stability and recovery time;
 - (vii) Functional Performance Tests shall be performed on complete systems. Each function shall be demonstrated to satisfaction of the CPE Commissioning Specialist on

paragraph-by-paragraph basis of CPE Commissioning Specialist's written test procedure, developed to demonstrate conformance to requirements of these Technical Requirements;

- (viii) Functional Performance Tests shall be witnessed and endorsed by Developer's CPE Commissioning Specialist upon satisfactory completion;
- (ix) actual testing program must be conducted in accordance with approved procedures and must be documented as required herein; and
- (x) A load shall be required to execute Level 4 commissioning. Sufficient load shall be provided by Developer in the form of load banks and/or heaters in conditioned spaces for as long as required to complete commissioning procedures as referenced in the Load Bank Plan.

(collectively, the "**Functional Performance Test**").

- (e) Level 5 commissioning activities shall consist of and comply with the following requirements:
 - (i) Integrated Systems Testing: Developer and CPE Commissioning Specialist shall verify the performance of integrated Facility Systems under design conditions and emergency conditions in a worst-case scenario, as agreed by the Commissioning Team; and
 - (ii) such Integrated Systems Testing shall, at a minimum:
 - (1) be performed on systems operating under Full Design Load, under fully automatic system operation with no alarms or system overrides in place;
 - (2) be performed under Day 1 Load conditions, under fully automatic system operation with no alarms or system overrides in place; and
 - (3) be performed at Final Completion, using thermal and electrical load banks to simulate load.
 - (iii) A load shall be required to execute Level 4 commissioning. Sufficient load shall be provided by Developer in the form of load banks and/or heaters in conditioned spaces for as long as required to complete commissioning procedures as referenced in the Load Bank Plan.

(collectively, the "**Integrated System Test**").

(f) Black Start Testing

The Black Start Test shall consist of the verification of the proper operation of the generator plant and all CPE equipment (electrical and mechanical) under the emergency condition where both utility feeds to the campus fail. Black Start Testing is performed under Day 1 Load conditions. The test will verify the continuity operations of the expanded Central Plant during both single and multiple utility failures, as well as UPS and generator plant operations. The expanded Central Plant must return to its initial operating conditions without incidents or interruption of service to be considered a successful test. The Black Start Testing shall comply with the following requirements:

- (i) The Black Start Test shall be performed after the successful completion of Level 5 commissioning
- (ii) All electrical loads shall be provided via downstream equipment and load banks. Electrical loads shall not be allowed to be simulated using software, meters, or signals; and
- (iii) The Black Start Test shall not be considered successfully completed until all mechanical and electrical systems return back to initial state. All systems that are not automatically restored shall be manually restored to their original state. After manual restoration of the facility's systems, the load banks will be re-energized and the facility will be brought back up to operation at the Day 1 Load.

3.11.9.9.4 Developer Notice of Testing to Owner

For the performance of Level 4 and Level 5 commissioning activities, Developer shall:

- (a) provide the Owner's Authorized Representative written notification 14 days prior to the commencement such commissioning activities;
- (b) provide the Owner's Authorized Representative with written notification for all subsequent testing, 48 hours prior to such subsequent testing; and
- (c) in the event of Functional Performance Test rescheduling, Developer shall provide the Owner's Authorized Representative with written notice 48 hours prior to such the commencement of such rescheduled test.

3.11.9.9.5 CPE Commissioning Test Methods

- (a) Simulated Conditions: over-writing values through the EMCS or SCADA shall not be acceptable. Proposed exceptions need to be

identified and protocol submitted to the Owner for approval. Prior to simulating conditions, overwriting values (if approved), or changing set-points, sensors, transducers and devices shall be calibrated. The following exceptions are acceptable:

- (i) When "various" actual static pressures inside ductwork cannot be simulated within the duct, and where a sensor signals the EMCS to initiate sequences at various duct statics, it would be considered acceptable to simulate the various pressures via pneumatic squeeze-bulb type signaling device with gauge temporarily attached to the sensing tube leading to the transmitter. Resetting the various set-points or simulating an electric analog signal shall not be acceptable.
- (ii) Dirty filter pressure drops can be simulated using sheets of cardboard at filter face.
- (iii) Freeze-stat safeties can be simulated via packing portion of sensor with ice.
- (iv) Heating the outside air sensor with a hair blower.
- (v) Using preheat coil to simulate entering cooling coil conditions.
- (vi) Using a signal generator to simulate a sensor signal is generally not recommended for commissioning, but may be proposed for special conditions.
- (vii) Alteration of set points. For example, to see the AC compressor lockout work at an outside air temperature below 55 degrees F, when the outside air temperature is above 55 degrees F, temporarily change the lockout set point to be 0 degrees F above the current outside air temperature. Caution: Set points are not to be raised or lowered to a point that would damage the components, systems, or the building structure and/or contents.
- (viii) Duct mounted smoke detectors to be tested per the detector manufacturer's recommendation using aerosolized smoke, and gauges on sampling tubes. Test shall be done with air system at minimum airflow condition in ductwork.
- (ix) Current sensing relays used for fan and pump status signals to EMCS to indicate unit failure and run status are to be tested by resetting the trip point on the relay to a point simulating lost belt or unit failure, while the unit is running and confirming that the failure alarm was generated and received at the EMCS. After test is conducted the set point

is to be returned to its original set-point or set-point as indicated by Owner.

- (b) CPE system component testing shall be performed under full load nameplate data. CPE system component successfully tested under full load nameplate during Level 3 commissioning activities shall not be required to be full load tested during Level 4 commissioning activities.
- (c) Level 4 commissioning activities shall include but shall not be limited to the following equipment:
 - (i) UPS modules;
 - (ii) diesel generators;
 - (iii) automatic transfer switches
 - (iv) static transfer switches; and
 - (v) power distribution units with static transfer switches. Such units shall be burned in until steady-state temperature is achieved and then switched between power sources while maintaining load.
- (d) Each Functional Performance Test item shall be performed under conditions that simulate actual conditions as close as is practically possible. Developer must provide all necessary materials and system modifications to produce the necessary required conditions to execute the test according to the specified conditions. At completion of the test, Developer shall return affected building equipment and systems, due to these temporary modifications, to their pre-test condition.
- (e) Temporary load banks shall be used to verify the performance of equipment under the three load conditions: Day 1 Load, Project load, and Project Master Plan load. Types, sizes, and locations shall comply with the approved Load Bank Plan.

3.11.9.9.6 CPE Testing Documentation

Developer shall maintain records of all written documentation for all other commissioning activities. Communication reports must be issued by Developer to the Owner's Authorized Representative that shall document omissions or potential deficiencies identified during examination of CPE Submittals, and daily commissioning activities on-site, to include identification of functional testing in progress and the results of completed testing. At the end of the commissioning process, Developer shall include all documentation in the PMCS and provide a summary in the final CPE commissioning report.

3.11.9.9.7 CPE Deficiency Resolution

In the event a report is issued to Developer that addresses an identified deficiency, Developer shall provide a copy of such report to Owner and CPE Commissioning Team prior to the commencement of any corrective action. Developer shall coordinate with the CPE Engineer of Record to find resolutions for any reported omissions or deficiencies.

3.11.9.9.8 CPE Commissioning Test Verification Requirements

The CPE Commissioning Test verification shall, at a minimum, comply with the following requirements:

- (a) provide verification of testing, adjusting and balancing performance of the CPE systems;
- (b) provide verification that component testing has been performed or shall be performed at the manufacturer's maximum rated load;
- (c) provide verification of all equipment ability to perform to design specifications, to include overall capacity, efficiency of operation, stability, absence of excessive vibration and noise, and correct setup and operation of safety controls, features, and alarms;
- (d) provide verification of the performance of overall systems, to include overall heating or process steam generation and distribution equipment, cooling generation and distribution equipment, fuel storage and distribution, individual air handling and ventilation systems, room-level HVAC control systems for critical environments, domestic hot water generation and distribution, and emergency power system generation, switching, and distribution elements. Testing shall also verify that all treatment systems and equipment are correctly operating;
- (e) provide verification of the performance of the automatic controls in all seasonal modes and in all normal and emergency modes of operation. CPE Commissioning Test procedures shall provide step by step, point by point, demonstration of each element of the sequence of operation, clearly describing means of artificial loading, or means of simulation of failure or load conditions, to be employed;
- (f) provide verification of the performance of the HVAC system as a whole;
- (g) provide verification of the performance of the electrical distribution systems;

- (h) infrared thermographic survey of all electrical equipment, feeders, breakers, PDU and panels supporting loads shall be performed by Developer;
- (i) UPS timed battery rundown test under full load nameplate data, including infrared thermographic survey of batteries and connections during discharge shall be performed by Developer.

3.11.9.9.9 Seasonal Commissioning and Occupancy Variations

- (a) Developer shall perform seasonal commissioning for the expanded Central Plant under full load conditions during peak heating season and peak cooling season and under part-load conditions in the spring and fall seasons.
- (b) Initial commissioning shall be performed as soon as all Central Plant Expansion Work is completed, regardless of season. For the major heating and cooling generation and distribution systems, means of artificial loading shall be developed by the CPE Commissioning Specialist as a means of demonstrating the ability to handle larger peak seasonal loads. Subsequent commissioning shall be undertaken at the appropriate time thereafter to ascertain adequate performance during the different seasons.
- (c) All HVAC equipment and systems including chilled water, condenser water, heating hot water, and associated air handling units and terminal units will be tested and commissioned during the peak cooling season or the peak heating season to observe full-load performance. Heating equipment shall be tested during winter design outdoor peak conditions with fully occupied Facilities. Cooling equipment will be tested during summer design outdoor peak conditions, with fully occupied Facilities. Developer shall ensure that each Contractor, supplier or vendor of CPE systems or CPE system components participates in the initial and the alternate peak season tests of the systems.
- (d) All CPE systems and components affected by occupancy variations shall be tested and commissioned at the minimum and peak loads to observe system performance. Developer shall ensure that each Contractor, supplier or vendor of CPE systems or CPE system components participates in the occupancy sensitive testing of systems to provide verification of adequate performance.
- (e) Based on the scheduling of seasonal testing, Developer shall discuss and coordinate with Owner any issues pertaining to Occupancy Readiness of the Facilities and start of warranty period for affected systems.

3.11.9.10 CPE Commissioning Acceptance

3.11.9.10.1 Commissioning Acceptance Procedures

- (a) All CPE Commissioning Tests in accordance with Section 3.11.9.9 (Implementation of CPE Commissioning Process) shall be completed and approved by Owner as a condition of Central Plant Expansion final completion.
- (b) Developer shall submit to Owner the final Commissioning Report including all test results after completion of the CPE Commissioning Process.
- (c) All CPE systems shall be tested for compliance with these Technical Requirements and each separate CPE Commissioning Test procedure shall be documented individually.
- (d) When the functional performance of all individual CPE systems has been proven, the interface or coordinated responses between systems shall be checked. The systems involved may be within the overall HVAC work or they may involve other systems, such as emergency systems for life safety.
- (e) Corrective Measures: If acceptable performance cannot be achieved, the cause of the deficiency shall be identified. If it is determined that the deficiency was caused by the Work or by any the system or component not being installed in accordance with the manufacturer's recommendations or the Contract Documents, the necessary corrective measures shall be carried out by Developer. Every check or test for which acceptable performance was not achieved must be repeated after the necessary corrective measures have been completed. This re-testing process shall be repeated until acceptable performance is achieved.
- (f) Changes to any equipment, components, and programming including sequence of operations, code, circuit breaker/relay trip settings, controllers, circuit boards, PLCs, and PDCs, that have been previously tested or are in the process of testing must require a complete restart of all functional testing associated with that equipment.

VOLUME II – TECHNICAL REQUIREMENTS

SECTION 4 – OPERATIONS AND MAINTENANCE REQUIREMENTS

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VOLUME II – TECHNICAL REQUIREMENTS

SECTION 4 OPERATIONS AND MAINTENANCE REQUIREMENTS

4.1 GENERAL REQUIREMENTS

4.1.1 O&M Services

4.1.1.1 These Operations and Maintenance Requirements describe the O&M Services that Developer shall provide at the Facilities. Developer shall commence O&M Services for each Facility in accordance with Section 6.1 (Commencement of O&M Services) of the Agreement and shall continuously perform the O&M Services, twenty-four (24) hours per day, 365 (366) days per year through to the Termination Date.

4.1.1.2 The O&M Services include Operations Management Services and Facilities Maintenance and Renewal Services.

4.1.1.3 The Operations Management Services are comprised of the following services described in Section 4.3 (Operations Management Services) of the Technical Requirements:

- (a) Customer Service Center (CSC) Services;
- (b) Emergency and Incident Management Services;
- (c) Utilities Management Services;
- (d) Integrated Pest Management Services;
- (e) Vandalism and Graffiti Control Services; and
- (f) Environmental Management Services.

4.1.1.4 The Facilities Maintenance and Renewal Services include Planned Maintenance, Demand Maintenance and Renewal Work, including the services described in Section 4.4 (Facilities Maintenance and Renewal Services) of the Technical Requirements.

4.1.1.5 Developer shall assign one representative to the Owner's Campus Emergency Operations Committee.

4.1.2 Additional O&M Services

Developer acknowledges that the specific O&M Services set forth in the Contract Documents do not limit the Developer's obligation to perform all services as may be reasonably required to achieve the standards and specifications set out in the Contract Documents and as required by Best Management Practices.

4.1.3 Excluded O&M Services

4.1.3.1 The Owner shall provide the following services at the Facilities (the “Excluded O&M Services”):

- (a) operation, maintenance, renewal and replacement of any Non-O&M Segments and all interior FF&E;
- (b) operation, maintenance, renewal and replacement of the IT systems and devices identified in Appendix 17 (IT Responsibility Matrix) of the Technical Requirements as a responsibility of the Owner;
- (c) operation of kitchen equipment and provision of dining food preparation services;
- (d) custodial services for interior and exterior spaces, meaning:
 - (i) sweeping, dusting and mopping;
 - (ii) sanitizing, restroom care and locker room care;
 - (iii) specialized cleaning of labs and classrooms; and
 - (iv) specialized cleaning of Student Life: Central Dining Area;(collectively, the “**Custodial Services**”);
- (e) collection of interior and exterior waste (except for Project Waste) in all Areas within the Project Site, and transport and disposal of such waste;
- (f) cleaning of exterior of the Buildings up to five (5) feet from ground level and excluding graffiti removal, exterior window cleaning and waterproofing maintenance;
- (g) exterior grounds services, meaning:
 - (i) operation of the irrigation system, weeding, mowing and grass cutting;
 - (ii) maintaining and cleaning roadside ditches, circulation roadways (including curbs and gutters along circulation roadways) and parking lots and keeping them free of Debris, litter, and excess vegetation, except as otherwise provided in Section 2.4.12 (Waste Management) of the Technical Requirements; and
 - (iii) maintaining, cleaning and keeping free of Debris, litter, and excess vegetation the following Areas: Nonassignable

Spaces: Exterior: Fields: Competition, Nonassignable
Spaces: Exterior: Fields: Recreation, and Nonassignable
Spaces: Exterior: Courts; except as otherwise provided in
Section 2.4.12 (Waste Management) of the Technical
Requirements;

- (h) security services, meaning:
 - (i) daily operation of interior and exterior Security Systems;
 - (ii) managing and maintaining a master key inventory and a key control program for all controlled Areas and containers; and
 - (iii) key card creation and assignment;
- (i) occupant support services, meaning arranging for seating, bleachers, gymnasium stage, desks or exterior movable furniture and supplying teaching aids and equipment;
- (j) pest management services;
- (k) parking services management;
- (l) management, maintenance, renewal and replacement of all signage installed by Developer in accordance with Section 3.8.13 (Signage) of the Technical Requirements;
- (m) operation of the Nonassignable Spaces: Exterior: Pool: Competition including the facilitation of competition events and maintenance of pool water depth and pool water quality, except as otherwise provided in Section 4.4.8.4 (Pool: Competition Area) of the Technical Requirements;
- (n) operation of the Student Life: Student Activity: Retail: Campus Store Area, including merchandising and sales;
- (o) cleaning of exterior furniture, except as otherwise provided in Section 4.3.5 (Vandalism and Graffiti Control Services) of the Technical Requirements; and
- (p) shipping, receiving and distribution functions for mail and parcels.

4.1.3.2 Equipment required for the Excluded O&M Services that is not included in the FF&E will be supplied by the Owner.

4.1.4 O&M Interface Obligations

4.1.4.1 Coordination with Excluded O&M Services

The Owner and Developer acknowledge that there is interface between the O&M Services and the Excluded O&M Services. The Developer and Owner shall coordinate the O&M Services and the Excluded O&M Services so that Developer can perform the O&M Services and the Owner can perform the Excluded O&M Services without obstruction or limitation. Developer shall:

- (a) provide training for Owner and Developer personnel on the cleaning and care of materials, floors and finished surfaces in Building interiors. Developer shall maintain a record of all training conducted; and
- (b) provide the Owner with a list of suitable cleaning products, specialized equipment and supplies for the Custodial Services.

4.1.4.2 Facilities Activities and the Coordination of O&M Services

Developer shall coordinate the O&M Services to support and avoid disruption to the Facilities Activities.

4.1.4.3 Key Management

Developer shall ensure that keys/key cards assigned to Developer by the Owner are not lost or misplaced and are not used by unauthorized persons. Developer shall immediately report lost or duplicate keys to Owner. Only Developer's personnel engaged in the performance of O&M Services or personnel authorized entrance by the Owner shall be granted access to locked areas. Keys and key cards provided to Developer are property of the Owner. Lost keys or keycards assigned to Developer personnel shall be replaced at Developer's expense.

4.1.4.4 Renewal Work Notifications to Owner

In addition to complying with the notice and reporting obligations in the Contract Documents and in the Operations and Maintenance Plan, Developer shall, one (1) calendar month prior to the commencement of any Renewal Work, notify the Owner's Authorized Representative of such Renewal Work so as to minimize disruptions to Facilities Activities. Developer shall make all reasonable efforts to schedule Renewal Work for time periods when the fall or spring semesters are not in session as identified annually in the UC Merced Academic Calendar:

<http://registrar.ucmerced.edu/schedules/calendars>. In the event the Owner requests a reschedule of Renewal Work, Developer shall make all reasonable efforts to accommodate such request.

4.1.4.4.1 Core Times

Developer shall schedule Planned Maintenance in accordance with Section 5.2(a) of Appendix 6 (Payment Mechanism) of the Agreement.

4.1.4.4.2 O&M Services During Special Events

- (a) In accordance with Section 2.4.5.2 (Special Events) of the Technical Requirements, Developer shall not perform Renewal Work or Planned Maintenance during Special Events.
- (b) Developer shall not test fire alarms at night or on Saturdays or during any Special Event.
- (c) Notwithstanding the restrictions set forth in Sections 4.1.4.4.2 (a) and (b) of the Technical Requirements, Developer shall continuously provide all other O&M Services during Special Events.
- (d) Developer may perform Renewal Work and/or Planned Maintenance during Advanced Coordination Days, in accordance with the requirements of Section 2.4.5.2 (Special Events) of the Technical Requirements. In the event the Owner requests a reschedule of Renewal Work, Developer shall make all reasonable efforts to accommodate such request.
- (e) During the Progress Meetings, Developer's Authorized Representative shall coordinate Renewal Work and/or Planned Maintenance and fire alarm testing with the Owner's Authorized Representative in order to meet the requirements of this Section 4.1.4.4.2.

4.1.4.4.3 Any additional Developer staff requested by Owner during Special Events shall be treated as an Owner Change.

4.1.5 Performance Measures

4.1.5.1 Availability Failures

Developer shall meet or exceed the Availability Standards, Response Periods and Cure Periods set forth in Annex 2 (Availability Standards) of Appendix 6 of the Agreement.

4.1.5.2 Performance Failures

Developer shall meet or exceed the Performance Standards, Response Periods and Cure Periods set forth in Annex 3 (Performance Standards) of Appendix 6 of the Agreement.

4.1.6 O&M Monitoring and Reporting Obligations

During the Operating Period, and in conformance with Section 2.8 (Reporting Requirements) of the Technical Requirements, Developer shall produce and submit to the Owner the following reports:

4.1.6.1 APPA Long Form

Annually, on the first Monday of the month of August, Developer shall submit the APPA Long Form report as found at <http://appa.org/research/FPI/index.cfm> to the Owner for review.

4.1.6.2 Monthly O&M Report

By the fifteenth (15th) day of each month, starting the month after the O&M Services commence, Developer shall submit to the Owner a report containing information on Developer's performance of the O&M Services during the previous calendar month (a "**Monthly O&M Report**"). The Monthly O&M Report shall contain:

- (a) the number of Campus-Related Call Requests and Project-Related Service Requests logged by number, title and description;
- (b) the number of Project-Related Service Requests open by number, title and description;
- (c) the number of Project-Related Service Requests closed by number, title and description;
- (d) the average call duration for Campus-Related Call Requests and Project-Related Call Requests combined;
- (e) a list of all Noncompliances, Availability Failures and Performance Failures, along with an explanation of the issue, discovery time and date, actual Temporary Cure Period versus required Temporary Cure Period and actual Permanent Cure Period versus required Permanent Cure Period;
- (f) a description of the Planned Maintenance and Renewal Work performed, including dates and tasks performed;
- (g) a comparison of actual performance metrics for Demand Maintenance and Planned Maintenance to the target performance metrics identified in the Master Maintenance Plan;
- (h) a description of the Planned Maintenance and Renewal Work that is scheduled or forecasted to be performed in the upcoming six (6) week period, with scheduled or forecasted dates for each activity;

- (i) any environmental issues that occurred within the Facilities or the Project Site and the resolution;
- (j) any safety issues that occurred and the resolution; and
- (k) the Quality Inspection Report in accordance with Section 4.1.6.6 (Quality Inspection Report) of the Technical Requirements.

4.1.6.3 Annual O&M Report

Every calendar year, Developer shall submit to the Owner a report containing information on Developer's performance of the O&M Services during the previous calendar year (an "**Annual O&M Report**"). The Annual O&M Report shall contain:

- (a) a summary of the data provided in each Monthly O&M Report for that year;
- (b) the Planned Maintenance Schedule for the next year;
- (c) Developer's Renewal Work Plan for the next five (5) years; and
- (d) an Asset Inventory Report in accordance with Section 4.1.6.5 (Asset Inventory Report) of the Technical Requirements.

4.1.6.4 Annual Water Consumption Analysis Report

Developer shall undertake an annual measurement and verification process to determine the water consumption at each Facility in the preceding year (the "Actual Water Consumption") in accordance with the following requirements of this Section 4.1.6.4 of the Technical Requirements.

- (a) Within sixty (60) days following the end of each Fiscal Year, and throughout the Term, Developer shall provide the Owner with a report (an "**Annual Water Consumption Analysis Report**"), the objective of which is to confirm the Actual Water Consumption and Actual Peak Water Demand at each Facility in the prior Fiscal Year.
- (b) The Annual Water Consumption Analysis Report shall include:
 - (i) the Actual Water Consumption and Actual Peak Water Demand during the relevant Fiscal Year on both, an individual Facility basis and an aggregate basis, for all Facilities;
 - (ii) a summary of the Actual Water Consumption, Heating Days and Cooling Days, and breakdown in gallons, identifying exceptional changes (being changes of plus or minus 10% in consumption or pattern use);

- (iii) a summary of potential cost savings in respect of water usage at the Facilities;
 - (iv) presentation of Heating Days and Cooling Days data for the relevant Fiscal Year;
 - (v) detailed analysis of all sub-metered end uses;
 - (vi) outline any outstanding issues from any previous Annual Water Consumption Analysis Report;
 - (vii) an updated projection of water consumption for the Facilities taken as a whole for the next five (5) years and cost projections in respect of such projected water usage along with pricing trends and potential associated risks;
 - (viii) table showing the percentage variation in Actual Water Consumption and the previous Fiscal Year's Actual Water Consumption;
 - (ix) summary tables from previous Fiscal Year's Annual Water Consumption Analysis Report; and
 - (x) copies of all working documents to fully support the Annual Water Consumption Analysis Report.
- (c) Developer shall utilize the following water consumption metrics, calculated in each case for each individual Facility and for all Facilities combined:
- (i) (Actual Water Consumption) / sq ft
 - (ii) (Actual Water Consumption) / sq ft / (total hours operated)
 - (iii) (Actual Water Consumption) / FTE
- (d) The Annual Water Consumption Analysis Report shall be submitted as part of the Annual O&M Report.

4.1.6.5 Asset Inventory Report

As part of the Annual O&M Report, Developer shall submit to the Owner a report that contains an inventory of systems, components, spare parts and other items or elements required for the ongoing operation and maintenance of the Facilities (an “**Asset Inventory Report**”).

4.1.6.6 Quality Inspection Report

As part of the Monthly O&M Report, Developer shall submit to the Owner a report that details Developer's conformance with its O&M Quality Management Plan.

4.2 MASTER MAINTENANCE PLAN AND RENEWAL WORK PLAN

4.2.1 Master Maintenance Plan

Developer shall adhere to, update and maintain as current the Master Maintenance Plan as approved by the Owner. Developer shall ensure that the Master Maintenance Plan (MMP) sets forth operations and maintenance practices that are designed to reduce life cycle costs and to reflect Best Management Practices. The initial MMP and all subsequent updates to the plan must, at a minimum:

- (a) account for the current condition of the Project;
- (b) describe how Developer will perform Planned Maintenance and Demand Maintenance and provide metrics to track maintenance performance;
- (c) describe how Facilities will be assessed to determine both Planned Maintenance and Renewal Work; and
- (d) include service plans, schedules, and replacement activities for Facilities Systems and associated equipment. Developer will schedule O&M Services so as to minimize negative impacts on Facilities Activities. O&M Services that, due to the nature of work, would have a negative impact on Facilities Activities shall be scheduled outside of Core Times.

4.2.2 Renewal Work Plan

4.2.2.1 Developer shall adhere to, update and maintain as current the Renewal Work Plan as approved by the Owner. The Renewal Work Plan shall address all elements of the Facilities to be renewed in accordance with the Contract Documents, including all Facility Systems, Building envelope, Infrastructure elements associated with exterior and interior areas and BMS.

4.2.2.2 Developer shall submit the initial Renewal Work Plan to the Owner in accordance with Section 2.7.7.1 (PMP Submittals) of the Technical Requirements. Thereafter, Developer shall submit an updated Renewal Work Plan annually for Owner's review and approval in accordance with Section 2.7.7.2 (PMP Submittals Review, Approval and Revision Procedure) of the Technical Requirements, except that the Owner shall have a minimum of 180 days to review and provide comments, reject or approve updated Renewal Work Plans.

4.2.2.3 The initial Renewal Work Plan and all subsequent updates to the plan must, at a minimum:

- (a) Be aligned with the obligations described in this Section 4 (Operations and Maintenance Requirements) of the Technical Requirements and in Section 5 (Handback Requirements) of the Technical Requirements;

- (b) Identify and describe Developer's management approach with respect to integrating and aligning the Planned Maintenance, Demand Maintenance, the Renewal Work and the Handback Renewal Work;
- (c) Describe the approach for Facilities condition inspection consistent with Section 4.4 (Facilities Maintenance and Renewal Services) of the Technical Requirements;
- (d) Describe the process for asset preservation, work identification and prioritization;
- (e) Detail the maintenance and repair requirements to remedy any identified defects;
- (f) Identify any areas of risk and describe appropriate mitigation measures;
- (g) Identify aspects of Renewal Work that may require environmental review a minimum of twelve (12) months prior to commencement of such Renewal Work;
- (h) Describe the approach for completing the annual Renewal Work Schedule including the resources, materials and equipment required;
- (i) Provide any recommendations or innovations to improve performance or performance reporting processes;
- (j) Provide a detailed description of the Renewal Work completed during the previous twelve (12) month period and a detailed description of the Renewal Work planned for the upcoming twelve (12) month period;
- (k) Provide for the development, submission and review of the Renewal Work Schedule in accordance with Section 6.6 (Renewal Work Schedule) of the Agreement; and
- (l) The Renewal Work Schedule shall provide a rolling, forward-looking, five-year schedule that describes the timing and nature of all planned Renewal Work.

4.3 OPERATIONS MANAGEMENT SERVICES

4.3.1 CSC Services

4.3.1.1 CSC Services Requirements

Developer shall:

- (a) provide a single Customer Services Center (CSC) for the Existing Campus and the Facilities, which will receive and handle all Campus-Related Call Requests and Project-Related Service Requests in accordance with the requirements of this Section 4.3.1 and which will form the day-to-day notification interface between the Owner and Developer in relation to the following matters:
 - (i) Project-Related Service Requests and Campus-Related Call Requests;
 - (ii) All updates of progress to resolve Project-Related Service Requests; and
 - (iii) Monitoring of and reporting relating to Facility Systems;
- (b) Maintain as part of the CSC Services a daily electronic log of the total for all Campus-Related Call Requests and Project-Related Service Requests;
- (c) Ensure that the CSC records in the electronic log all relevant details, including the following information, in respect of Project-Related Service Requests:
 - (i) CSC operator's name;
 - (ii) Requestor's name;
 - (iii) Date and time;
 - (iv) Affected Facility;
 - (v) Nature of the Project-Related Service Request and any applicable Performance Failure and/or Availability Failure;
 - (vi) Service required;
 - (vii) Classification (priority);
 - (viii) Response Period;
 - (ix) Date and time of action taken and by whom; and

- (x) Applicable and achieved Cure Period;
- (d) Comply with the additional requirements applicable to Campus-Related Call Requests set forth in Section 4.3.1.2 of the Technical Requirements;
- (e) Not delete or alter any details recorded by the CSC unless approved by the Owner and shall preserve the following information as recorded:
 - (i) The exact nature and impact of the alteration or deletion;
 - (ii) The reason for the alteration or deletion; and
 - (iii) By whom the alteration or deletion was authorized;
- (f) Provide sufficient resources to address all Project-Related Service Requests from the time they are received through their completion in a manner that is consistent with the Technical Requirements and the Agreement. The CSC shall route all Project-Related Service Requests to the appropriate party and communicate with the requestor on the status of the Project-Related Service Request and expected completion time. Developer shall respond to all Project-Related Service Requests through deployment of the correct level of support to resolve all matters in accordance with the Technical Requirements and the Agreement;
- (g) Implement a system for receiving and processing Campus-Related Call Requests and Project-Related Service Requests submitted via telephone. Telephone access to the CSC shall be provided at local call rate charges;
- (h) Provide for electronic submittals and data management as follows:
 - 1) Develop the Developer's Web Portal for the management of Project-Related Service Requests and Campus-Related Call Requests;
 - 2) Develop the Web Portal and associated software for the on-line submission of Project-Related Web Requests and Campus-Related Web Requests. Ensure that the Web Portal:
 - (i) distinguishes between Project-Related Web Requests and Campus-Related Web Requests;
 - (ii) upon submission, automatically directs Campus-Related Web Requests to the Owner via the Owner's Web Portal, and Project-Related Web

Requests to Developer via Developer's Web Portal;

- (iii) is clear and unambiguous to the User; and
 - (iv) effectively mitigates the risk of Project-Related Web Requests being mischaracterized as Campus-Related Web Requests or Campus-Related Web Requests being mischaracterized as Project-Related Web Requests;
- 3) Collaborate with the Owner to establish a protocol to actively promote Web Portal access as the primary means for placing Project-Related Service Requests and Campus Related Service Requests; and
- 4) Maintain and upgrade all software necessary to ensure that the Web Portal provides secure, prompt and efficient distribution of Campus-Related Web Requests and Project-Related Web Requests, and to ensure continuity with Owner's Web Portal, except that Developer is not responsible for the cost of upgrades that are needed due to upgrades to the Owner's Web Portal software that occur more frequently than once every three (3) years;
- (i) Ensure that all telephone calls received by CSC are answered with a live, English-speaking attendant in thirty (30) seconds or less and the number of calls abandoned by callers before speaking with an attendant is less than five (5) percent;
 - (j) Keep records of phone call response times, the amount of time callers are placed on-hold and the number of calls abandoned;
 - (k) Ensure that in the event of emergencies, the CSC assists in raising the alarm, reporting the incident to internal and external authorities, coordinating the response and recording the details;
 - (l) Ensure the CSC Services will maintain confidentiality consistent with the requirements of the Agreement;
 - (m) Provide comprehensive instructions to the Owner on how to report issues to the CSC including the level of detail required and the categorization and priority of requests in accordance with the terms of the Agreement;
 - (n) Comply with all notification and reporting procedures set out in Appendix 6 (Payment Mechanism) of the Agreement;

- (o) Undertake a random audit of calls on a monthly basis to demonstrate that the requirements of this Section 4.3.1 (CSC Services) of the Technical Requirements are being complied with and report findings to the Owner;
- (p) Provide the Owner with remote “read-only” access to all CSC data including the Developer’s Web Portal in a manner that allows the Owner to download the information in a format that will allow for manipulation and analysis; and
- (q) Adhere to, update and maintain as current the Customer Service Center Plan as approved by the Owner.

(collectively, the “**CSC Services**”).

4.3.1.2 Additional Campus-Related Call Request Requirements

4.3.1.2.1 Developer shall ensure that the CSC enters all data relating to each Campus-Related Call Request into the Owner’s Web Portal within in fifteen (15) minutes of receipt by the CSC of a Campus-Related Call Request.

4.3.1.2.2 Developer shall provide, maintain and upgrade all software necessary to ensure the secure, prompt and efficient entry of Campus-Related Call Request data to the Owner’s Web Portal, and to ensure continuity with Owner’s Web Portal, except that Developer is not responsible for the cost of upgrades that are needed due to upgrades to the Owner’s Web Portal software that occur more frequently than once every three (3) years.

4.3.1.2.3 Developer shall ensure that the CSC records in the electronic log all relevant details for Campus-Related Call Requests, including the following information, at a minimum, to the extent that such information is provided by the User:

- (a) Requestor’s name;
- (b) Date and time of request;
- (c) Phone number;
- (d) Email address;
- (e) Location of requested service;
- (f) Repair center;
- (g) Account number for rechargeable services;
- (h) Asset type;
- (i) Asset number; and

- (j) All notes, correspondence and any other documentation provided by the requestor or created by the CSC, if any, in each case, unaltered.

4.3.1.3 CSC Services Operations Time

Developer shall continuously perform the CSC Services twenty-four (24) hours per day, 365 (366) days per year.

4.3.1.4 Excess Campus-Related Call Requests

Each Excess Campus-Related Call Request in a month will result in an additional per call charge to be paid by the Owner. The per call charge shall not exceed Developer's cost per call (without mark-up) as evidenced by supporting documentation. Compensation payable by the Owner pursuant to this Section shall be included in the calculation of the Partial Quarterly Settlement Amount or the Quarterly Settlement Amount, as applicable, in accordance with Section 1.1.3 or Section 1.2.3 of Appendix 6 (Payment Mechanism) to the Project Agreement. Developer is not entitled to any additional compensation for Excess Campus-Related Call Requests

4.3.2 Emergency and Incident Management Services

Developer shall:

- (a) Adhere to, update and maintain as current the Emergency Management and Disaster Recovery Plan as approved by the Owner;
- (b) Continue to provide essential O&M Services during an emergency or an Incident. The essential services include any systems that support life, safety or research (the "**Essential O&M Services**") and are generally the spaces within all Academic: Research Areas, Student Life: Wellness Center Areas, Student Life: Central Dining Area, Campus Operations: Public Safety Areas and Housing Areas. All Facilities Systems related to such Essential O&M Services shall be identified within the CMMS system;
- (c) Ensure seventy-two (72)-hour fuel supply at a minimum for auxiliary backup systems;
- (d) Work with the Owner to develop and conduct fire and life safety training programs for all Developer and Owner personnel at the Facilities. Developer shall provide training to new personnel within their first sixty (60) days at the Facilities and shall provide refresher sessions to all personnel every eighteen (18) months;
- (e) Perform annual fire drill and evacuation procedures at each Facility and document attendance, in coordination with the Owner and the DCFM;

- (f) Participate in Owner disaster back-up and recovery program development and effectively address assigned action steps in the event disaster recovery plans are activated; and
- (g) Establish emergency response escalation programs in accordance with Owner guidelines to ensure the appropriate Owner personnel are notified of emergency conditions.

(collectively, the “**Emergency and Incident Management Services**”).

4.3.3 Utilities Maintenance Services

4.3.3.1 Developer shall maintain and renew each Utility from the Mainline Point of Connection to the Facilities, and throughout the Project Site.

4.3.3.2 Developer shall ensure that Utilities are available to the Facilities twenty-four (24) hours a day, seven (7) days a week, in compliance with the Contract Documents, unless otherwise specifically authorized by the Owner.

4.3.4 Integrated Pest Management Services

4.3.4.1 Owner will provide pest management services within the interior and exterior of the Facilities.

4.3.4.2 Developer shall:

- (a) cooperate with the Owner regarding Owner’s pest management activities and comply with Owner’s pest plans and policies;
- (b) adhere to, update and maintain as current the Integrated Pest Management Plan as approved by the Owner;
- (c) provide site specific recommendations for structural and procedural modifications to aid in pest prevention; and
- (d) Intentionally deleted
- (e) implement preventative measures to:
 - (i) eliminate threats to health and safety of campus occupants, including vector threats;
 - (ii) prevent damage to or soiling of Facilities;
 - (iii) protect the environmental quality, appearance and cleanliness of the Facilities; and
 - (iv) ensure continued and efficient Owner operations and Campus Activities.

4.3.5 Vandalism and Graffiti Control Services

Developer shall:

- (a) Furnish all supervision, labor, materials, and equipment necessary to remediate occurrences of vandalism or graffiti at the Facilities; and
- (b) Report each occurrence of vandalism or graffiti to the CSC.

4.3.6 Environmental Management Services

Developer shall:

- (a) Furnish all supervision, labor, materials and equipment necessary to provide within the Project Site the environmental management services set forth in this Section 4.3.6;
- (b) Adhere to, update and maintain as current the Environmental Management Plan as approved by the Owner;
- (c) Comply with the requirements of Section 2.4.13 (Environmental Requirements) of the Technical Requirements in performance of the O&M Services, and prepare any necessary amendments to permit applications and provide to the Owner for review;
- (d) Cooperate with the Owner in connection with any environmental documentation required for the performance of Renewal Work and any Owner Changes;
- (e) Provide all necessary support to the Owner in connection with Owner's application for LEED EBOM certification for the Project, including at a minimum providing to the Owner any requested documentation and data relating to the O&M Services and the performance of the Facilities; and
- (f) Track and report to the Owner any environmental impacts that arise during the Operating Period.

4.3.6.1 Developer will self-monitor and document compliance and noncompliance and report to the Owner in accordance with the Environmental Communication Plan. In the event that compliance with any environmental commitment is not possible or feasible, Developer shall report and substantiate to the Owner's satisfaction the reason for such noncompliance, and shall include appropriate recommendations for corrective actions to attain and maintain compliance.

4.4 FACILITIES MAINTENANCE AND RENEWAL SERVICES

From the commencement of O&M Services at each Facility, Developer shall maintain and renew such Facility including all associated elements and improvements. At a minimum, Developer shall:

- (a) Adhere to, update and maintain as current the version of the MMP and Renewal Work Plan as approved by the Owner;
- (b) Except as otherwise provided in the Contract Documents, properly operate, maintain and renew the Infrastructure, each Facility and each Element of each Facility to ensure that the Facilities and all Areas of the Facilities:
 - (i) Meet the Availability Standards and Performance Standards;
 - (ii) Function and operate safely and perform in accordance with the Technical Requirements and the Final Design Documents;
 - (iii) Remain in compliance with applicable Laws and Manuals and Guidelines; and
 - (iv) Meet the Handback Requirements upon expiry of the Term;
- (c) Ensure that properly trained, licensed, and certified personnel address the range of Planned Maintenance, Demand Maintenance and Renewal Work;
- (d) Ensure that security, fire suppression and detection, emergency power supply and mechanical systems are fully operational twenty-four (24) hours a day, seven (7) days a week, unless specifically authorized by the Owner and the DCFM;
- (e) Maintain all documentation required by the Technical Requirements in respect of the Planned Maintenance, Demand Maintenance and Renewal Work accurately and up to date;
- (f) Utilize a Computerized Maintenance Management System (CMMS) and provide the Owner with the ability to read, download and print data from the CMMS. The CMMS may be web-enabled. Developer may choose to combine such CMMS with a computer aided facilities management system. The CMMS system shall, at minimum, be used to track Planned and Demand Maintenance, Project-Related Service Requests made to the CSC, Renewal Work, time to complete maintenance or Renewal Work, Project-Related Service Request response time, vendor work, asset and equipment histories, cost data, space utilization and other relevant documentation required to actively manage the Facilities

environment. All data and documentation contained in the CMMS shall be the property of Owner;

- (g) Unless otherwise provided in the Contract Documents, maintain all Facilities Systems and all equipment identified in the Area Data Sheets in accordance with manufacturer's requirements and frequencies; and
- (h) Perform the specific maintenance and renewal tasks set forth in this Section 4.4 (Facilities Maintenance and Renewal Services) of the Technical Requirements.

(collectively, the "**Facilities Maintenance and Renewal Services**").

4.4.1 Facility Envelope/Structure

The Facility envelope/structure includes the structural frame, roof, curtain wall, penetrations from exterior to interior, foundations, building façade, exterior cladding, windows and glazing, doors and door hardware, framing, water protection and barrier.

Developer shall:

- (a) Maintain and renew all roofing systems and exterior Building surfaces, including all drainage and gutter systems to ensure there are no leaks or seepage, and to plan for inclement weather conditions;
- (b) Fix gaps and cracks in all Building exterior walls, retaining walls, apertures and roofing to prevent water seepage into Buildings or foundations and to match the existing surface coloration, quality and finish;
- (c) Inspect structural elements for rust, rot or other deterioration, particularly in staircases, roofs and load bearing elements;
- (d) Maintain and renew concrete precast, cement plastering, cement pointing and joint caulking. Conduct regular inspections and preventive treatment, repair any damage and provide preventive/concrete protection;
- (e) Provide the labor and equipment necessary to properly clean Building exteriors. Cleaning of exterior windows shall occur once per year and cleaning of Building exteriors shall occur once every thirty-six (36) months, in each case even if exterior windows and Building exteriors are in compliance with the Performance Standards;
- (f) Exterior pressure washing activities shall be a Planned Maintenance activity scheduled in advance with the Owner in order

to avoid any interruptions to Facility Activities. Ensure appropriate care is taken around entrances/doorways etc. in order to avoid splashes/slip hazards;

- (g) Maintain and renew all exterior enclosure elements, including but not limited to exterior walls, panels, windows and cladding;
- (h) Maintain and renew all egress doors, vestibules and associated systems;
- (i) Maintain and renew all roof, skylight and other roofing elements, including annual load testing of roof davits and anchor systems; and
- (j) Maintain and renew all exterior lightning protection systems and components in accordance with NFPA 24 as adopted by the State of California.

4.4.2 Doors, Gates and Fencing

Developer shall:

- (a) Maintain and renew all doors gates, turnstiles and fences to ensure they function as intended and with the required level of security;
- (b) Maintain and renew all finishes on doors, gates, turnstiles and fences to retain a uniform, clean appearance, finishing quality and coloration;
- (c) Maintain and renew all door hardware, except for locking mechanisms; and
- (d) Maintain an inventory of all Facility keys and master keys within Developer's possession. Key control will be managed by Owner.

4.4.3 Windows, Glass and Glazing

Developer shall:

- (a) Maintain and renew interior and exterior building glass components (including caulking) and complete Building envelope to ensure a water/air-tight fit; and
- (b) Perform all water and condensation related maintenance and repairs.

4.4.4 Interior and Exterior Finishes

Developer shall:

- (a) Maintain and renew all architectural finishes, including paint, wall covering, carpet, tile, or hardware, or other elements associated with walls, ceilings, hard and soft floors, raised floors, or doors, as the case may be, to ensure safety is not compromised and the finishes retain a uniform, clean appearance, finishing quality and coloration; and
- (b) Maintain and renew brass and other exterior metal finishes to retain a uniform, clean appearance, finishing quality and coloration.

4.4.5 Facility Systems Maintenance

4.4.5.1 Plumbing System

4.4.5.1.1 Plumbing System Elements

The plumbing system and equipment includes systems such as water pumps, municipal/private well water lines, sewer lines, fire plumbing systems, irrigation systems, back flow preventers, roof drains, storm drains, cafeteria grease traps and drains, condensate pumps, sump pumps, ejector pits, grease traps, water softeners and the systems supporting pumps, drains, piping, risers, valves, faucets, toilets, together with associated fixtures and associated Infrastructure within Project Site and the Facilities.

4.4.5.1.2 Requirements

Developer shall:

- (a) Operate, maintain and renew the plumbing system and equipment to ensure continuous operations;
- (b) Clean grease traps to avoid odor and slip hazards and to avoid any potential damage to the Building;
- (c) Ensure landscape irrigation systems function as designed;
- (d) Ensure all plumbing equipment is appropriately labeled with correct and consistent reference to the site plumbing riser diagrams;
- (e) Develop and maintain a cross-connection control and backflow prevention program that complies with the United States Environmental Protection Agency (EPA), and Merced Water and Sewer Standards in Water Conservation & Environmental Stewardship Part 8;
- (f) Comply with the limitations of chapters 15.24 and 15.29 of the Merced Municipal Code in connection with sewer discharges; and

- (g) Monitor drainage systems, including stormwater, purple pipe, potable water, waste water, and fire sprinkler water, and maintain in operating condition.

4.4.5.2 Heating, Ventilation and Air Conditioning Systems (HVAC)

4.4.5.2.1 HVAC Elements

The HVAC equipment and system includes all Facility chillers, boilers, pumps, air handlers, computer room AC (CRAC) units, server room A/C units, exhaust systems, fan coil units, fresh air and return air fan systems, air compressors, pumps, VAV boxes, VFDs, thermostats, piping, distribution, pressure valves, fire dampers and associated mechanical equipment.

4.4.5.2.2 General Requirements

Developer shall:

- (a) Operate, maintain and renew HVAC equipment and systems to ensure the Areas served by the systems comply with applicable standards including ASHRAE Standard 62, ASHRAE Standard 55, California Title 24 and addendums to the standards;
- (b) Operate, maintain and renew HVAC equipment and systems to provide maximum efficiency for energy conservation in accordance with Appendix 17 (Energy Utilities Management) to the Agreement without compromising the comfort of Building occupants;
- (c) Operate, maintain and renew HVAC equipment and systems to provide continuous operations with no controllable interruptions that affect Facilities Activities and to support Area Core Times;
- (d) Ensure flexibility to allow Area set points to be adjusted during the Term as agreed to by Developer and the Owner;
- (e) Test for bacteria, legionella and like contaminants on an ASHRAE approved frequency;
- (f) Test the rate of metal erosion and share results with Owner upon request;
- (g) Periodically (at minimum on an annual basis) test mechanical equipment, according to applicable Law and National Fire Protection Association (NFPA) 110 - Standard For Emergency And Standby Power, Section 8.4 and NFPA 24 as adopted by the State of California, connected to emergency backup systems during routine generator testing where Facilities Systems are transferred to produce load. Ensure that expected electrical and mechanical

backup operations occur during power outages or other emergency conditions; and

- (h) Ensure that interior Areas maintain an interior temperature of 72 degrees Fahrenheit DB, +/- 3 degrees, unless otherwise provided in an Area Data Sheet.

4.4.5.2.3 Lab Specific Requirements

Developer shall ensure that:

- (a) Fume hoods in all Academic: Research Areas meet additional criteria for air flow and opening of hood area per ASHRAE 110;
- (b) Where applicable, single pass air flow maintenance practices are used in laboratory spaces;
- (c) Vibration near laboratory spaces is maintained at or below the requirements set forth in Section 3.7.1.5 (Vibration) of the Technical Requirements; and
- (d) Developer will work collaboratively with the Owner to define an operating protocol for energy considerate use of fume hoods. Developer shall deliver training to the Owner on the use of fume hoods in accordance with Section 3.11.4.4.2 (Commissioning Plan) of the Technical Requirements. Developer shall provide exception reporting to the Owner if the operating protocol is not complied with.

4.4.5.2.4 Vivarium Specific Requirements

Developer shall ensure that:

- (a) AAALAC is strictly followed in regard to Academic: Research: Core Lab: Research Laboratory 14: Vivarium Suite Area; and
- (b) Air changes in Academic: Research: Core Lab: Research Laboratory 14: Vivarium Suite Area may be increased or decreased at any time by Owner.

4.4.5.2.5 Kitchen Specific Requirements

Developer shall:

- (a) Ensure that kitchen hoods are cleaned and maintained as necessary to prevent the accumulation of grease and are in compliance with applicable Law; and
- (b) Manage refrigerants to reduce use and emissions of chlorofluorocarbons. Developer shall maintain the Refrigerant

Management Plan required by the EPA and the CBC. Developer shall update the plan annually. Developer shall submit the plan to the Owner and the appropriate regulatory agency within thirty (30) days of Occupancy Readiness of each applicable Facility. The plan shall include onsite refrigerant inventories and describe where refrigerants are used. Developer shall maintain all required record keeping and make all necessary reports and filings with federal, state and local environmental regulatory agencies.

4.4.5.3 Electrical and Lighting Systems

4.4.5.3.1 Electrical and Lighting Systems Elements

The electrical system includes all devices that establish electric connectivity, electrical infrastructure and system electrical readiness throughout the Facilities.

4.4.5.3.2 Requirements

Developer shall:

- (a) Maintain and renew electrical distribution systems in accordance with Best Management Practice;
- (b) Maintain and renew electrical infrastructure equipment such as switchgear, transformers, transfer switches, electrical panels, uninterruptable power supply (UPS) systems, generators, PDU's, from the main switch to the outlet or connection to an occupant device, to ensure continuous operations;
- (c) Maintain and renew electrical system in accordance with Best Management Practice, but not less than recommended by the National Fire Protection Agency and applicable Law for the maintenance of electrical systems;
- (d) Maintain and renew interior and exterior lighting systems in accordance with the Area Data Sheets, Section 3.8.6 (Lighting Systems) of the Technical Requirements and in a manner that supports a secure environment on the interior and exterior of the Buildings and all associated walkways, parking lots and structures;
- (e) Developer shall operate the level and timing of Project Site lighting in accordance with Owner instructions;
- (f) Provide infrared thermograph services every three (3) years. Developer shall follow NFPA 70E, including any guidelines provided by OSHA in respect to electrical, electrical safety and arc flash;

- (g) Maintain and renew backup equipment such as UPS systems, UPS batteries, switchgear and generators to ensure a continuous supply of power to areas as indicated in the Area Data Sheets and Section 3.8.5.2 (Specific Area Data Sheet Requirements) of the Technical Requirements. Ensure backup systems have a seventy-two (72) hour supply of fuel at all times. At a minimum, maintain backup power supply systems according to NFPA 25 as adopted by the State of California;
- (h) Ensure no controllable interruptions affect Campus Activities where backup power systems are in place by periodically testing equipment using the auxiliary backup power distribution systems;
- (i) Ensure that all emergency lighting systems function as intended during power outage conditions;
- (j) Document electrical circuit changes and update local panel directories. Developer shall also install labels on all newly installed circuits;
- (k) Maintain and renew relays, boards, power supplies and switches as necessary;
- (l) Replace ballast in accordance with the manufacturer specifications; and
- (m) Replace failed lamps as necessary ensuring the proper products are utilized to satisfy space design and illumination requirements.

4.4.5.4 IT Infrastructure

4.4.5.4.1 IT Infrastructure Maintenance

Developer shall maintain and renew the IT Infrastructure, including the Passive System Components identified in Appendix 17 (IT Responsibility Matrix), to ensure that all associated systems or devices identified in Appendix 17 function in accordance with Owner and manufacturer requirements.

4.4.5.4.2 Research: Core Labs: Research Server Center Maintenance

Developer shall maintain and renew the Academic: Research: Core Labs: Research Server Facility to ensure:

- (a) The containerized data center components shall perform in accordance with the requirements set forth in Section 3.8.10.5.5 of the Technical Requirements;
- (b) the containers are free from leaks and seepage;

- (c) the pad mounted switchgear and transformer function as intended and allow for uninterrupted use of the Research Server Facility;
- (d) the standby generator maintains 8 hours of running time at all times;
- (e) the Utility connections allow for uninterrupted use of the Research Server Facility;
- (f) the exterior of the containers maintain a clean and uniform appearance;
- (g) the structural concrete pad identified in Section 3.8.10.5.5 (b)(iv)(2) has no cracking, spalling or delamination; and
- (h) the perimeter fencing is maintained in accordance with Section 4.4.2 (Doors, Gates and Fencing).

4.4.5.5 Fire Protection and Life Safety Systems

4.4.5.5.1 Fire Protection and Life Safety Systems Elements

Fire protection and life safety systems include any and all devices that support the safety of Users (the “**Fire Protection and Life Safety Systems**”). Typical devices include fire alarm system, mass notification system, fire sprinkler system, other extinguishing systems, emergency lighting, fire and smoke dampers, fire dampers, fire hydrants, opening protective systems and all devices covered by NFPA 24 as adopted by the State of California, the DCFM and other Governmental Entities.

4.4.5.5.2 Requirements

Developer shall:

- (a) Inspect, test, maintain and renew Fire Protection and Life Safety Systems to ensure continuous operation and availability;
- (b) Ensure NFPA as adopted by the State of California, DCFM, and any other applicable guidelines are met for all sprinkler systems, fire pumps, fire extinguishers, pressure relief valve(s), alarm(s) and anything relating to the Fire Protection and Life Safety System;
- (c) Conduct all fire and life safety specific maintenance and testing of all Fire Protection and Life Safety Systems and components consistent with and at the frequencies required by Best Management Practices, applicable Law and the requirements set forth in NFPA 13, 25 and 72;
- (d) Conduct all fire and life safety specific maintenance and testing of all fire doors and other opening protective devices consistent with

and at the frequencies required by Best Management Practices, applicable Law and the requirements set forth in NFPA 80, as adopted by the State of California; and

- (e) Submit the results of all inspections and testing of Fire Protection and Life Safety Systems and components, including fire doors and opening protective devices, to the DCFM within one (1) month of such test or inspection being performed, and submit records relating to any other aspect of the Fire Protection and Life Safety Systems and components to the DCFM upon request by the DCFM.

4.4.5.6 Building Management System

Developer shall maintain and renew all components of the Building Management system as outlined in Appendix 17 (IT Responsibility Matrix) to ensure connectivity and control of the mechanical and electrical equipment in the Facilities.

4.4.6 Vertical Circulation

4.4.6.1 Elevators Elements

Elevator and vertical transportation systems include elevators, escalators, loading dock hydraulic lifts and associated hoistways, doors, interior cabs, pit areas and any signage.

4.4.6.1.1 Requirements

Developer shall:

- (a) Maintain and renew all elevator and vertical transportation systems to ensure continuous operations;
- (b) Perform all testing routines as required by Governmental Entities;
- (c) Perform periodic cleaning of elevator pits;
- (d) Obtain and properly display permits/certificates;
- (e) Ensure all elevator and vertical transportation systems operate as intended when placed on backup power systems;
- (f) Develop, implement and monitor compliance with emergency response procedures;
- (g) Ensure all elevator cab emergency communications and notification systems and escalator emergency power off switches are operational at all times;
- (h) Ensure elevator phones operate as designed and are tested in accordance with applicable Law, including monthly recall testing;

- (i) Clearly mark systems as “Out of Service” as necessary. Developer shall also communicate with Owner when outages occur including the nature and expected duration of the problem;
- (j) Use new and/or OEM parts;
- (k) Provide a quarterly elevator performance report and an annual independent consultant report detailing the performance and reliability of all elevators within the Buildings. Report shall detail the individual unit performance relative to the design and commissioning standards for the following metrics: system availability, wait time, and feet per minute rates;
- (l) Ensure any elevator cab-top hoisting shall be done by the direct supervision and control of a certified elevator technician; and
- (m) Ensure any entrapments shall be resolved under the direct supervision and control of a certified elevator technician and/or fire department personnel.

4.4.7 Circulation

4.4.7.1 Paving Maintenance

- (a) Within pedestrian paths of travel, Developer shall repair cracks, raised pavement and joint separations in paved surfaces as required to maintain ADA compliance; and
- (b) For other paved surfaces, Developer shall repair cracks, raised pavement and joint separations in paved surfaces in asphalt paving greater than one half (1/2) of an inch and in concrete paving greater than one quarter (1/4) of an inch.

4.4.7.2 Sidewalks and Planter Strips

Developer shall:

- (a) Maintain and renew pedestrian-scale lighting along sidewalks and walk paths; and
- (b) Monitor and repair concrete sidewalk heaving, skateboard protection and trip hazards, potholes and pavement cracks as required in Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements. Adherence to ADA accessibility requirements for these areas shall be required at all times.

4.4.7.3 Bicycle Paths and Facilities

Developer shall:

- (a) Inspect, maintain and renew on and off-road bicycle paths, repairing potholes, cracks or raised pavement as required in Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements;
- (b) Repair and replace pavement markings, prismatic reflectors, and bicycle path delineators that are non-functioning, broken, missing or obstructed;
- (c) maintain and renew short term bicycle parking facilities and bicycle area parking pads; and
- (d) maintain and renew bicycle facilities, including water drinking fountains, bicycle maintenance and repair tools, secure bicycle parking and lockers.

4.4.7.4 Roadways within the Project Site

Developer shall perform the following obligations in respect of roadways within the Project Site:

- (a) Maintain and renew traffic control systems and update traffic control as required with corresponding increases in traffic throughout the Term;
- (b) Ensure that all repairs are in conformity, at a minimum, with the requirements of Section 3.4.14 (Project Site Circulation) of the Technical Requirements, as applicable;
- (c) Maintain and repair all pavement surfaces to match the grades and slopes of the existing roadway and thickness of the existing pavement and ensure that all pavement surfaces shall be free of depressions, or humps with no separation at adjacent undisturbed pavement joints;
- (d) Repair all voids, potholes, erosion, ruts, etc., in a manner and time frame to permit safe and continual passage across the access roads;
- (e) Analyze any pavement surfaces that are considered or show indications to be classified as slippery. Slippery pavements must be resurfaced with a skid resistant pavement or treatment;
- (f) Repair all pits, chips, pop-outs scaling or other surface defects that can be identified or classified as spalls;
- (g) On roadways used for vehicular traffic, repair pavement cracks as required in Section 4.4.7.1 (Paving Maintenance) of the Technical

Requirements by properly sealing to prevent water and Debris from entering the pavement structure and sub-base;

- (h) On roadways where vehicular traffic is restricted to emergency ingress and egress, repair pavement cracks as required in Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements by properly sealing to prevent water and Debris from entering the pavement structure and sub-base;
- (i) On roadways used for vehicular traffic, repair pavement joint separations, as required in Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements;
- (j) On roadways where vehicular traffic is restricted to emergency ingress and egress, repair pavement joint separations as required in in accordance with Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements;
- (k) Repair pavement joint failures immediately;
- (l) Repair and replace all broken, settled, damaged, cracked, spalled and deteriorated sections of the curb and gutter to match adjacent curb and gutter sections;
- (m) Provide a suitable base to ensure effective drainage of the road base in areas where surface damage is evident;
- (n) Grind and/or profile pavement to maintain a smooth and safe driving surface;
- (o) Maintain and renew roadways to enable proper sheet flow away from the center line and avoid standing water;
- (p) Ensure that all pavement striping and markings are well defined, clear, legible and reflective;
- (q) Repair and replace pavement markings, reflective pavement markings, prismatic reflectors, and roadside delineators that are non-functioning, broken, missing or obstructed, as applicable;
- (r) Replace or remove pavement marking and striping that require alteration due to changing needs or conditions; and
- (s) Remove or repair scars or damage left by pavement marking removal.

4.4.7.5 Bridges

4.4.7.5.1 Developer shall perform the following obligations in respect of bridges within the Project Site:

- (a) Maintain and renew the pedestrian/service vehicle bridges over the canals;
- (b) Maintain and renew vehicular bridges over the canals including walkway and bike lanes;
- (c) Repair all pits, chips, pop-outs scaling or other surface defects that can be identified or classified as spalls;
- (d) Maintain and renew bridge railings and parapets that are unsafe;
- (e) Inspect, repair or replace all rusted, bent, loose, missing, unsafe and/or damaged steel railings or parapets;
- (f) Inspect, repair or replace all cracked unsound, delaminated, missing, unsafe and/or damaged concrete railings or parapets;
- (g) Inspect, repair and replace damaged bridge joint seals that are unsafe or have the potential to become unsafe, or that would accelerate the deterioration of other bridge and structure elements;
- (h) Inspect, repair or replace all bridge joints that no longer function or operate as intended by the original design; and
- (i) Inspect, repair or replace all bridge components that become loose, bent, gouged, separated from substrate, damaged, broken, cracked, experience section loss or that are missing.

4.4.7.5.2 All bridge Work shall conform to California Department of Transportation bridge maintenance standards.

4.4.7.6 Transit Facilities and Transit Shelters

4.4.7.6.1 Transit Hub Facilities

Developer shall:

- (a) Maintain and renew central transit hub(s) including the bus bays, shelters, lighting, bicycle parking and pedestrian connections to adjacent buildings; and
- (b) Maintain and renew restrooms within or adjacent to the transit facilities.

4.4.7.6.2 Transit Shelters

Developer shall maintain and renew transit stops including shelters, paved waiting areas, benches, trash, recycling and composting receptacles, items used to provide shade, and lighting, with the exception of trees. Repairs made to transit shelters shall allow them to remain consistent with transit shelters throughout the campus. To the extent that trees interfere with transit stop operations, Developer shall notify Owner of such interference in a timely manner. Provide and maintain space for mechanisms in the transit shelters to post updated transit route map and timetable service information.

4.4.7.7 Vehicle Parking Systems

4.4.7.7.1 General Requirements

Developer shall:

- (a) Maintain egress doors, vestibules and associated systems;
- (b) Maintain all lightning systems and components;
- (c) Maintain parking lot and garage parking lane striping to include parking spaces for visitors, permitted parking, accessible parking, carpools, vanpools, car shares, low-emission, and natural gas vehicles;
- (d) Maintain electric vehicle charging stations in working order;
- (e) Maintain pavement markings and reflective pavement markings that are faded, missing or obstructed; and
- (f) Remove or repair scars or damage left by pavement marking removal.

4.4.7.7.2 Surface Parking Lots

Developer shall:

- (a) Maintain surface parking lots to ensure pavement is stable and durable, free from defects including rutting raveling, shoving, bleeding, depressions, potholes, cracks, settlements, heaving, weathering, fatigue or loss of traction and that gravel lots are wetted during dry seasons;
- (b) Investigate, inspect and rectify the underlying cause or the origin of defects or damage before commencing repair work;
- (c) Ensure that all repairs, temporary or permanent, restore the integrity of the pavement so that it can withstand traffic loading;

- (d) Repair all pavement surfaces to match the grades, slopes and thickness of the existing pavement and ensure pavement is free of depressions or humps with no separation at the adjacent undisturbed pavement joints;
- (e) Analyze pavement surfaces that are considered or show indications that they are slippery. Slippery pavements must be resurfaced with a skid resistant pavement or treatment;
- (f) Repair all pits, chips, pop-outs scaling or other surface defects that can be identified or classified as spalls;
- (g) Repair pavement cracks as required in Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements by properly sealing to prevent water and Debris from entering the pavement structure and sub-base;
- (h) Repair pavement joint separations, as required in Section 4.4.7.1 (Paving Maintenance) of the Technical Requirements;
- (i) Repair pavement joint failures immediately;
- (j) Repair and replace all broken, settled, damaged, cracked, spalled and deteriorated sections of the curb and gutter to match adjacent curb and gutter sections;
- (k) Grind and/or profile pavement to maintain a smooth and safe driving surface;
- (l) maintain and renew parking lots to avoid standing water;
- (m) Ensure that all pavement striping and markings are well defined, clear, legible and reflective;
- (n) Repair and replace pavement markings and reflective pavement markings that are faded, missing or obstructed;
- (o) Replace or remove pavement marking and striping that require alteration due to changing needs or conditions; and
- (p) Remove or repair scars or damage left by pavement marking removal.

4.4.7.7.3 Parking Structures

Developer shall:

- (a) Maintain and renew all exterior enclosure elements, including but not limited to exterior walls, panels, windows and cladding;

- (b) Maintain and renew all roof, skylight and other roofing elements;
- (c) Ensure that temporary repairs or patching can withstand traffic loading until a permanent repair can be made;
- (d) Repair all pavement surfaces to match the grades and slopes of the existing parking structure and ensure surfaces are free of depressions or humps with no separation at the adjacent undisturbed pavement joints; and
- (e) Ensure that pavement surfaces that are considered or show indications to be classified as slippery are analyzed and resurfaced with a skid resistant pavement or treatment.

4.4.8 Student Life and Athletics

4.4.8.1 Fields: Competition Area

4.4.8.1.1 Developer shall maintain and renew all elements required to support the Nonassignable Spaces: Exterior: Fields: Competition Area, including entry and exit points, permanent bleachers and benches, shade structures, the public address system, restrooms, locker rooms, concession facilities, ticket facilities, fencing and lighting.

4.4.8.1.2 Developer shall maintain and renew the Infrastructure in the Nonassignable Spaces: Exterior: Fields: Competition Area and ensure compliance with the traffic loading requirements in set forth in Section 3.7.14.1.13(c) of the Technical Requirements.

4.4.8.2 Fields: Recreation Area

4.4.8.2.1 Developer shall maintain and renew all elements required to support the Nonassignable Spaces: Exterior: Fields: Recreation Area, including shade structures and fencing.

4.4.8.2.2 Developer shall maintain and renew the Infrastructure in the Nonassignable Spaces: Exterior: Fields: Recreation Area.

4.4.8.3 Courts

Except as otherwise set forth in Section 4.1.3 (Excluded O&M Services), Developer shall maintain and renew of the Nonassignable Spaces: Exterior: Courts.

4.4.8.3.1 Volleyball Courts

Developer shall ensure:

- (a) Volleyball courts are in playable condition, with sand depths maintained to eighteen (18) inches in play areas and twelve (12) inches in free zones;

- (b) Sand is maintained so that the under drainage system is working properly, to fully drain within thirty (30) minutes of a twenty-five (25)-year storm;
- (c) Edge restraint or curb between sand and surrounding site are functioning and without sharp edges;
- (d) Court net system, including nets, uprights, upright safety pads, net antennae, and tensioning system is in good condition, without damage; and
- (e) Referee stand and padding is in good condition, without damage.

4.4.8.3.2 Basketball Courts

Developer shall:

- (a) Ensure basketball courts are in playable condition, with no grade change or unevenness of more than one (1) inch in any eight (8) feet;
- (b) Ensure equipment, including poles, backboard, rim, and nets, are in working order and good condition; and
- (c) Monitor and repair court base for heaving and trip hazards, repairing potholes, cracks or raised pavement of more than one half ($\frac{1}{2}$) inch.

4.4.8.3.3 Tennis Courts

Developer shall:

- (a) Ensure tennis courts are in playable condition, with no grade change or unevenness of more than one (1) inch in any eight (8) feet;
- (b) Ensure court net system, including nets, posts, anchors and tensioning system are in good working condition and without damage;
- (c) Monitor and repair hard court surface for heaving and trip hazards, repairing potholes, cracks or raised pavement of more than one half ($\frac{1}{2}$) inch; and
- (d) Ensure umpire chairs are in good condition and without damage.

4.4.8.4 Pool: Competition Area

4.4.8.4.1 The Nonassignable Spaces: Exterior: Pool: Competition Area includes a competition pool and associated elements. Except as otherwise set forth in Section

4.1.3 (Excluded O&M Services), Developer shall maintain and renew the following elements to ensure a safe environment and operation in accordance with Owner requirements and NCAA Division II Standards for Swimming and Diving Pools:

- (a) The Pool: Competition Area including:
 - (i) pool floor, walls, gutters and base materials;
 - (ii) lane striping and depth marking in the pool;
 - (iii) pool decks;
 - (iv) ladders, stairs and handrails/handgrips;
 - (v) built-in spectator seating;
 - (vi) restrooms;
 - (vii) changing rooms; and
 - (viii) meeting and staging areas.
- (b) All mechanical and electrical equipment associated with the Pool: Competition, including;
 - (i) pumps, pipes, valves, drains and waste water disposal;
 - (ii) water circulation, filtration and disinfection systems;
 - (iii) water heaters;
 - (iv) electrical connections required for competition pool equipment including touchpads and pace clocks;
 - (v) All AV Infrastructure and IT Infrastructure associated with the Pool: Competition including video cameras and video boards; and

All communications equipment in accordance with the requirements outlined in Section 3.8.8.2 (Area Data Sheet Requirements), including the starter public address sound system.

4.4.9 Intentionally deleted

4.4.10 Built-In Equipment

Developer shall maintain and renew all built-in equipment specified in the Area Data Sheets and all built-in equipment specified in Section 3 (Design and Construction

Requirements) of the Technical Requirements to ensure the equipment functions as intended by the manufacturer and supports the intended use of the Area.

VOLUME II – TECHNICAL REQUIREMENTS

SECTION 5 HANDBACK REQUIREMENTS

5.1 HANDBACK RENEWAL WORK PLAN

Five (5) full years prior to the end of the Term, Developer shall submit a Handback Renewal Work Plan to the Owner for approval that:

- (a) Provides a process for the assessment of the condition, operation, and performance of the Facilities and includes:
 - (i) the methods and tests that will be used during condition and performance assessments, the acceptance criteria, and the acceptance measures or limits that must be satisfied; and
 - (ii) standards, or other information used to support the testing, inspection, and asset evaluation process, including updates to standards that occur during the Term.
- (b) Includes in the assessment process, at a minimum, all Elements of the Facilities for which there is a minimum design life requirement set forth in Section 3 (Design and Construction Requirements) of the Technical Requirements and all Elements of the Facilities identified in Section 5.6.1(b), together with any further assets incorporated into the Project as a result of Developer's design configuration and Facilities in place at the time that the Handback Renewal Work Plan is prepared;
- (c) Describes and proposes a schedule for Handback Renewal Work;
- (d) Details the cost of executing the Handback Renewal Work;
- (e) Provides for Annual Handback Evaluation Reports for the remainder of the Term;
- (f) Provides a plan for the transition of O&M Services responsibilities to the Owner and acceptance by the Owner of the Facilities and O&M responsibilities upon satisfaction of the Handback Requirements;
- (g) Provides for Owner staff training on all Facility Systems Manuals, systems, and procedures; and
- (h) Identifies areas that are subject to Developer's obligations under Section 4.10 (Contaminated Materials and Undesirable Materials Management) of the Agreement due to Contaminated Materials or Undesirable Materials. For any such areas identified, the Handback

Renewal Work Plan shall include documentation concerning Developer's compliance with its obligations under Section 4.10 of the Agreement.

5.2 HANDBACK REQUIREMENTS

Developer shall:

- (a) upon receipt of approval by the Owner, implement and comply with the Handback Renewal Work Plan;
- (b) perform inspections of the Facilities in accordance with Section 5.3 (Inspections Prior to Handback) of the Technical Requirements;
- (c) prepare and deliver Annual Handback Evaluation Reports in accordance with Section 5.4 (Annual Handback Evaluation Report) of the Technical Requirements;
- (d) perform the Handback Renewal Work identified in the Annual Handback Evaluation Reports in accordance with the Handback Renewal Work Plan and the Contract Documents and ensure that:
 - (i) all Facilities and Elements within the Facilities are in compliance with applicable Law and Governing Regulations and performing in accordance with the Technical Requirements at the expiry of the Term; and
 - (ii) all Facilities and Elements within the Facilities are the condition required in Section 5.6 (Facility Condition and Remaining Useful Life) of the Technical Requirements;
- (e) transfer Replacement Parts to the Owner in accordance with Section 5.7 (Turnover of Replacement Parts) of the Technical Requirements; and
- (f) organize, update and submit to Owner all documentation (Design Documents, Plans, Project Records, reports, manuals and any other documentation pertaining to the Project) in accordance with Section 5.8 (Handback Deliverables) of the Technical Requirements.

(collectively, the "**Handback Requirements**").

5.3 INSPECTIONS PRIOR TO HANDBACK

5.3.1 Prior to the expiry of the Term, Developer shall perform three (3) inspections of the Facilities as follows (the "**Handback Inspections**"):

- (a) The first Handback Inspection shall take place no earlier than forty (40) calendar months and be completed no later than thirty-seven (37) calendar months prior to the expiry of the Term;
- (b) The second Handback Inspection shall take place no earlier than sixteen (16) calendar months and be completed no later than thirteen (13) calendar months prior to the expiry of the Term; and
- (c) The final Handback Inspection shall take place no earlier than four (4) calendar months and be completed no later than two (2) calendar months prior to the expiry of the Term.

5.3.2 The Owner may participate in all aspects of the Handback Inspections. Developer shall provide the Owner with reasonable notice of all inspection activities and tests to allow the Owner to fully participate in the Handback Inspections.

5.4 ANNUAL HANDBACK EVALUATION REPORT

5.4.1 Within fifteen (15) days following each Handback Inspection, Developer shall prepare and deliver to the Owner a report of the condition of the Facilities (the “**Annual Handback Evaluation Report**”). The Annual Handback Evaluation Report shall:

- (a) identify the condition of the Facilities, and each Element of the Facilities in relation to the Handback Requirements;
- (b) identify the Handback Renewal Work required to ensure that the Facilities meet the Handback Requirements;
- (c) include Developer’s detailed written plan for completing the Handback Renewal Work, including the year in which each aspect of the Handback Renewal Work would be required;
- (d) specify Developer’s estimate of the Renewal Amount; and
- (e) detail how Developer’s estimated Renewal Amount was calculated.

5.4.2 After the preparation of the first Annual Handback Evaluation Report and prior to the commencement of each year remaining in the Term, Developer, upon consultation with the Owner, shall update the Handback Renewal Work Plan, as needed, to reflect changes in conditions of the Facilities or evaluation methodology determined following an inspection of the Facilities by the Owner or its designee. Each subsequent Handback Renewal Work Plan prepared after the first plan shall be subject to the approval of the Owner. As well as including the results from the last Annual Handback Evaluation Report, the Handback Renewal Work Plan shall include the estimated cost and schedule of implementation of the remaining Handback Renewal Work.

5.5 DETERMINATION OF RENEWAL AMOUNT

Within fifteen (15) days of receipt of each Annual Handback Evaluation Report, the Owner:

- (a) may review and comment on the Annual Handback Evaluation Report;
- (b) may conduct its own inspections of the Facilities; and
- (c) shall, after giving due consideration to the Annual Handback Evaluation Report, determine in good faith the Renewal Amount.

5.6 FACILITY CONDITION AND REMAINING USEFUL LIFE

5.6.1 On the Termination Date:

- (a) the Facilities and each of the Elements comprising the Facilities shall be in a condition consistent with such Facilities and Elements:
 - (i) having been designed and constructed in accordance with the applicable minimum design life requirements set forth in Section 3 (Design and Construction Requirements) of the Technical Requirements;
 - (ii) operated, maintained and renewed in accordance with Section 4 (Operations and Maintenance Requirements) of the Technical Requirements; and
- (b) the following Elements shall have at a minimum a Remaining Useful Life of five (5) years:
 - (i) Sloped roofing systems;
 - (ii) Flat roofs, flashing, roof appurtenances;
 - (iii) Carpet, resilient flooring, paint, wall coverings, ceilings;
 - (iv) Built-in casework and equipment;
 - (v) Plumbing pumps, valves and faucets;
 - (vi) HVAC cooling and heating equipment, air handlers; fans, controls, air and water valves;
 - (vii) Electrical controls, alarm and signal systems;
 - (viii) Emergency Generators;

- (ix) Hydraulic elevators;
- (x) Traction elevators;
- (xi) Escalators;
- (xii) Pool concrete shell;
- (xiii) Pool systems and supporting infrastructure;
- (xiv) Light Fixtures;
- (xv) Bituminous pavement surfaces (roadways, parking lots, pedestrian and bicycles);
- (xvi) Parking Collection and Access Systems; and
- (xvii) Irrigation System.

5.6.2 The Remaining Useful Life shall be the expected remaining period, measured in years after the Termination Date, during which each Element listed in Section 5.6.1(b) of the Technical Requirements will continue to function as designed without further capital renewal or replacement provided that such Elements are appropriately maintained after the Termination Date, and established in accordance with accepted industry standards with consideration of the following:

- (a) manufacturer recommended life expectancies for the Element;
- (b) physical inspection of the Element; and
- (c) a detailed review of the service records for the Element to determine if the service history effectively shortened or extended the expected useful life of the Element.

5.7 TURNOVER OF REPLACEMENT PARTS

At the Termination Date, Developer shall transfer to the Owner all spare fixed components and replacement parts (the “**Replacement Parts**”), at no cost to the Owner, that Developer has in its inventory and possession for purposes of the maintenance of the Facilities. For further certainty, at the Termination Date Developer shall have an inventory of Replacement Parts which is reasonably in accordance with the amount and type of inventory maintained throughout the Term. Developer shall ensure that all Replacement Parts are stored on the premises at locations previously agreed upon by the Owner and Developer as of the Termination Date. At the Termination Date, Developer shall release and transfer to the Owner all its right, title and interest in any and all such Replacement Parts, free and clear of all liens and encumbrances. The Owner reserves the right not to accept obsolete, damaged or any

other Replacement Parts from the Developer's inventory the use of which the Owner deems not to be in the best interest of the Owner.

5.8 HANDBACK DELIVERABLES

5.8.1 Asset Inventory Report

Developer shall provide an up-to-date final Asset Inventory Report, including all records of warranties, as well as an inventory of spare parts and other infrastructure to be handed over to the Owner no later than one (1) calendar month prior to the Termination Date.

5.8.2 Project Records

Developer shall provide the most current and up-to-date versions of all Project Records prepared in connection with the Work, including Facility Systems Manuals, and all instruction manuals, warranties and documents related to the Facilities.

5.8.3 Electronic Documents

Electronic files containing schedule information shall be compatible with the latest version of the scheduling software utilized by the Owner at the Termination Date, be submitted in native format, and be editable by the Owner. Electronic files containing CAD drawing information shall be compatible with the latest version of computer aided design software utilized by the Owner at the Termination Date, be submitted in native format, and be editable by the Owner. Other electronic files shall be compatible with the most recent version of the corresponding software suite utilized by the Owner at the Termination Date and be editable. Upon request by the Owner, selected documents may be submitted in PDF format or another format as otherwise agreed by the Parties. All electronic files shall be made available to the Owner on a secure web-based portal managed by the Owner.

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APPENDIX 1 – PROGRAM

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APPENDIX 1-A – PROGRAM SUMMARY

(See attached.)

APPENDIX 1A - PROGRAM SUMMARY

		First Delivery	Second Delivery	Substantial Completion	2020 Project	Master Plan Only	Total Master Plan
ACADEMIC		ASF	ASF	ASF	ASF	ASF	ASF
	Research						
	Wet	-	24,750	51,480	76,230	-	76,230
	Dry	-	20,460	32,340	52,800	-	52,800
	Computational	-	9,240	9,240	18,480	-	18,480
	Performance	-	3,300	660	3,960	-	3,960
	Lab Support and Maintenance	-	8,705	5,335	14,040	-	14,040
	Core Lab	-	1,025	15,000	16,025	17,500	33,525
	Office				-		
	Academic Office	-	62,355	50,395	112,750	-	112,750
	Academic Leadership Office	-	-	9,099	9,099		9,099
	Classroom				-		
	Classroom	14,600	-	18,960	33,560	11,000	44,560
	Class Laboratory	-	15,885	10,560	26,445	-	26,445
	Black Box Theater					4,500	4,500
	Colloquy Spaces	-	5,100	4,900	10,000	-	10,000
	Total SF	14,600	150,820	207,969	373,389	33,000	406,389
HOUSING							
	Residence Hall	98,947	-	137,303	236,250	22,230	258,480
	Apartments	-	-	-	-	-	-
	Graduate	-		-	-	65,700	65,700
	Staff/Faculty in Residence	-	-	20,400	20,400	-	20,400
	Chancellor's residence				-	6,500	6,500
	Admin/Community	15,338	-	11,760	27,098	-	27,098
	Support & Maintenance	4,165	-	1,665	5,830	-	5,830
	Total SF	118,450	-	171,128	289,578	94,430	384,008
STUDENT LIFE							
	Central Dining	27,985	-	-	27,985		27,985
	Student Activity	-	-	50,950	50,950	4,240	55,190
	Wellness Center	-	-	7,780	7,780	-	7,780
	Enrollment Center	-	-	18,425	18,425	7,960	26,385
	Welcome Center	-	-	-	-	12,070	12,070
	Early Childhood	-	-	3,080	3,080	-	3,080
	Arena	-	-	-	-	85,020	85,020
	Athletics: Aquatic Center	-	-	4,580	4,580	7,070	11,650
	Athletic: Fields	-	-	2,720	2,720	3,270	5,990
	Total SF	27,985	-	87,535	115,520	119,630	235,150
CAMPUS OPERATIONS							
	Fire Operations Facility	-		-	-	9,400	9,400
	Public Safety	-		-	-	15,645	15,645
	Environmental Health & Safety	-		-	-	3,375	3,375
	Total SF	-		-	-	28,420	28,420
						-	-
TOTAL PROGRAM		161,035	150,820	466,632	778,487	275,480	1,053,967
Site Facilities							
Site Areas (in Site SF)		SF	SF	SF	SF	SF	SF
	Early Childhood Outdoor Play Area			3,000	3,000		3,000
	Fields: Competition		100,000	-	100,000		100,000
	Aquatic Center: Competition Pool			11,500	11,500		11,500
	Fields: Recreation			250,000	250,000		250,000
	Courts: Volleyball			-	-	16,000	16,000
	Courts: Basketball			33,264	33,264	17,136	50,400
	Courts: Tennis			22,800	22,800	7,600	30,400
Counts (Each)		EA	EA	EA	EA	EA	EA
	Undergraduate Beds	712		988	1,700	117	1,817
	Graduate Student Beds		-		-	200	200
	Fields: Competition		1		1		1
	Athletic Field Bleachers				-		-
	Competition pool			1	1		1
	Pool Bleachers			500	500		500
	Fields: Recreation (Full Size)			2	2		2
	Courts: Volleyball			0	-	2	2
	Courts: Basketball			4	4	2	6
	Courts: Tennis			3	3	1	4
PARKING - Counts							
	Parking (net new)	940	-	630	1,570		1,570
	Parking: Bus	-	-	0	-	10	10
	Parking: Secure	-	-	0	-	50	50

APPENDIX 1-B – PROGRAM ELEMENTS

(See attached.)

APPENDIX 1-B - PROGRAM ELEMENTS

TOTAL ASF778,487

Program Category	Program Subcategory	Program Unit	Area Type	DOS ID	Intended Use	Quantity	Size (ASF)	Total ASF	Priority	F&E Package	Equipment Package
Academic	Classroom		Classroom 1: 299 Seat, Stepped Seating	C-02		1	6,250	6,250	4 030 - Classroom 1: 299 Seat, Stepped Seating		AV01a - 299 Seat Lecture, 90 Seat Lecture, 90 Seat Lecture (TEAL)
Academic	Classroom		Classroom 2: 90 Seat (TEAL), Flat Floor	C-04		2	2,250	4,500	4 031 - Classroom 2: 90 Seat (TEAL), Flat Floor		AV01c - 90 Seat Lecture (TEAL)
Academic	Classroom		Classroom 3: 90 Seat, Flat Floor	C-03		1	1,800	1,800	4 029 - Classroom 3: 90 Seat, Flat Floor		AV01b - 90 Seat Lecture
Academic	Classroom		Classroom 4: 30 seat	C-01		16	660	10,560	5 008 - Classroom 4: 30 seat		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom		Classroom 5: 24 seat Seminar Room	C-05		16	500	8,000	5 011 - Conference Room 03: 24 seats		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom		Storage: General	GN-22	Classroom Service	2	500	1,000	9 058 - Storage: General		
Academic	Classroom		Storage: General	GN-22	Supply	5	250	1,250	9 058 - Storage: General		
Academic	Classroom		Storage: General Wet	GN-25	Accessed from Lecturer side of Classroom 1: 299 Seat	1	200	200	4 058 - Storage: General		
Academic	Classroom	Class Laboratory	Classroom Laboratory 1: Wet	CL-01		7	990	6,930	4 026 - Classroom Laboratory: Wet		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom	Class Laboratory	Classroom Laboratory 2: Chemistry	CL-02		3	1,320	3,960	4 026 - Classroom Laboratory: Wet		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom	Class Laboratory	Classroom Laboratory 3: Organic Chemistry	CL-03		2	1,650	3,300	4 026 - Classroom Laboratory: Wet		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom	Class Laboratory	Classroom Laboratory 4: Dry	CL-04		7	990	6,930	4 025 - Classroom Laboratory: Dry		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom	Class Laboratory	Classroom Laboratory 5: Computational	CL-05		1	330	330	4 094 - Classroom Laboratory: Computational		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom	Class Laboratory	Classroom Laboratory 6: Studio	CL-06		1	1,320	1,320	4 081 - Deferred FF&E		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Academic	Classroom	Class Laboratory	Classroom Laboratory 7: Maker Space	CL-07		1	1,320	1,320	4 041 - Classroom Laboratory: Maker Space		
Academic	Classroom	Class Laboratory	Classroom Laboratory 8: Service	CL-09		8	250	2,000	4 024b - Classroom Laboratory 8: Service		
Academic	Classroom	Class Laboratory	Storage: Chemical	AR-20		1	355	355	4 059 - Storage: Chemical		
Academic	Colloquy Spaces		Colloquy Space 1: Large	C-06		5	1,000	5,000	5 054 - Colloquy Space		
Academic	Colloquy Spaces		Colloquy Space 2: Medium	C-07		8	500	4,000	5 054 - Colloquy Space		
Academic	Colloquy Spaces		Colloquy Space 3: Small	C-08		5	200	1,000	5 054 - Colloquy Space		
Academic	Office	Academic Office	Office 04: Faculty	OF-01	LRF	191	130	24,830	7 045 - Office: Private		
Academic	Office	Academic Office	Office 04: Faculty	OF-01	LP5OE, L5OE	40	130	5,200	7 045 - Office: Private		
Academic	Office	Academic Office	Work Station 02	GN-04		37	65	2,405	7 069 - Workstation		
Academic	Office	Academic Office	Office 03: Research Staff	OF-04	(2 per office)	96	130	12,480	7 045b - Office: Shared		
Academic	Office	Academic Office	Work Station 02	GN-04	Grad Students	715	65	46,475	7 069 - Workstation		
Academic	Office	Academic Office	Lobby	GN-19		8	185	1,480	7 034 - Lobby		AV06 - Public Space (lobbies, etc.)
Academic	Office	Academic Office	Work Station 02: Reception	GN-30		8	65	520	7 070 - Workstation: Reception		
Academic	Office	Academic Office	Work Station 02	GN-04	Administrative	24	65	1,560	7 069 - Workstation		
Academic	Office	Academic Office	Office 01: Administrator	GN-02	Huddle Room	8	100	800	7 099 - Office: Huddle Room		AV04 - Huddle Room
Academic	Office	Academic Office	Printer/Copy Room	GN-17		14	300	4,200	7 999 - No FF&E		
Academic	Office	Academic Office	Conference Room 02: 10-12 seats	GN-05		12	350	4,200	7 012 - Conference Room 02: 10-12 seats		AV03 - Conference Rooms
Academic	Office	Academic Office	Conference Room 01: 8 seats	GN-07		24	200	4,800	7 013 - Conference Room 01: 8 seats		AV03 - Conference Rooms
Academic	Office	Academic Office	Storage: General	GN-22	Filing	13	200	2,600	9 058 - Storage: General		
Academic	Office	Academic Office	Breakroom / Kitchenette	GN-11		8	150	1,200	9 006 - Break Room / Kitchenette		
Academic	Office	Academic Leadership Office	Kitchen: Serving/Prep - Small	AS-11		1	195	195	7 999 - No FF&E		
Academic	Office	Academic Leadership Office	Lobby	GN-19		1	223	223	7 075 - Lobby - Chancellor		AV06 - Public Space (lobbies, etc.)
Academic	Office	Academic Leadership Office	Work Station 02: Reception	GN-30		1	65	65	7 072 - Workstation: Reception (Chancellor)		
Academic	Office	Academic Leadership Office	Office 05: Chancellor	CO-45		1	275	275	7 071 - Office: Leadership		
Academic	Office	Academic Leadership Office	Conference Room 02: 10-12 seats	GN-05		1	350	350	7 073b - Conference Room 02: 10-12 seats - Chancellor		AV03 - Conference Rooms
Academic	Office	Academic Leadership Office	Office 06: Provost	OF-02		1	250	250	7 071 - Office: Leadership		
Academic	Office	Academic Leadership Office	Office 07: Vice Chancellor	OF-03		6	200	1,200	7 071 - Office: Leadership		
Academic	Office	Academic Leadership Office	Office 02: Administrator	GN-01		3	120	360	7 045 - Office: Private		
Academic	Office	Academic Leadership Office	Work Station 02	GN-04	Administrative Assistants	8	65	520	7 069 - Workstation		
Academic	Office	Academic Leadership Office	Storage: General	GN-22	File Room	1	135	135	9 058 - Storage: General		
Academic	Office	Academic Leadership Office	Printer/Copy Room	GN-17		1	176	176	7 999 - No FF&E		
Academic	Office	Academic Leadership Office	Multipurpose	SH-20	Board Room	1	3,000	3,000	7 081 - Deferred FF&E		AV05 - Board Room
Academic	Office	Academic Leadership Office	Conference Room 03: 24+ seats	GN-06		1	500	500	7 073c - Conference Room 03: 24 seats - Chancellor		AV03 - Conference Rooms
Academic	Office	Academic Leadership Office	Conference Room 01: 8 seats	GN-07		2	200	400	7 073a - Conference Room 01: 8 seats - Chancellor		AV03 - Conference Rooms
Academic	Office	Academic Leadership Office	Office 02: Administrator	GN-01	Hotel Space	3	120	360	7 045 - Office: Private		
Academic	Office	Academic Leadership Office	Work Station 02	GN-04		16	65	1,040	7 069 - Workstation		
Academic	Office	Academic Leadership Office	Restroom: Gender Inclusive w/shower	GN-21	For Chancellor's office	1	50	50	7 999 - No FF&E		
Academic	Research	Wet	Research Laboratory 01: Wet	AR-01		71	660	46,860	2 027 - Research Laboratory: Wet		
Academic	Research	Wet	Research Laboratory 01A: Synthetic Chemistry	AR-05		6	660	3,960	2 027 - Research Laboratory: Wet		
Academic	Research	Wet	Research Laboratory 02: Wet Support	AR-10		72	330	25,110	2 024 - Laboratory: Service		
Academic	Research	Dry	Research Laboratory 03: Dry	AR-02		10	440	4,400	2 027 - Research Laboratory: Wet		
Academic	Research	Dry	Research Laboratory 03A: Dry - Dark	AR-04		10	440	4,400	2 027 - Research Laboratory: Wet		
Academic	Research	Dry	Research Laboratory 03B: Dry - Flex	AR-07		20	440	8,800	2 027 - Research Laboratory: Wet		
Academic	Research	Dry	Research Laboratory 04: Dry Support	AR-11		80	220	17,600	2 024 - Laboratory: Service		
Academic	Research	Computational	Research Laboratory 05: Computational, Large	AR-03		28	440	12,320	2 081 - Deferred FF&E		
Academic	Research	Computational	Research Laboratory 06: Computational, Small	AR-15		28	220	6,160	2 081 - Deferred FF&E		
Academic	Research	Performance	Research Laboratory 07: Studio	AR-08		6	440	2,640	2 081 - Deferred FF&E		
Academic	Research	Performance	Research Laboratory 08: Studio Support	AR-17		6	220	1,320	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Research Laboratory 02: Wet Support	AR-10	Shared Equipment room	3	1,000	3,000	2 024 - Laboratory: Service		
Academic	Research	Lab Support and Maintenance	Storage: Temp Controlled	GN-34		3	120	360	2 999 - No FF&E		
Academic	Research	Lab Support and Maintenance	Research Laboratory 10: Glasswash and autoclave room	AR-24		6	165	990	2 030b - Research Laboratory 10: Glasswash and autoclave room		
Academic	Research	Lab Support and Maintenance	Research Laboratory 12: Academic Machine Shop	AR-25		2	1,500	3,000	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Chemical Stockroom: Organic Chemical Storage	AR-26		1	330	330	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Chemical Stockroom: Inorganic Chemical Storage	AR-27		1	330	330	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Chemical Stockroom: Solvent Storage	AR-28		1	220	220	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Chemical Stockroom: Gas Storage	AR-29		1	420	420	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Chemical Stockroom: Office / Workroom	AR-30		1	200	200	2 081 - Deferred FF&E		
Academic	Research	Lab Support and Maintenance	Storage: General	GN-22	Equipment & general storage	1	1,000	1,000	9 058 - Storage: General		
Academic	Research	Lab Support and Maintenance	Storage: Chemical	AR-20		6	220	1,320	2 059 - Storage: Chemical		
Academic	Research	Lab Support and Maintenance	Storage: General	GN-22		6	220	1,320	9 058 - Storage: General		
Academic	Research	Lab Support and Maintenance	Trash/Recycling	GN-08		4	300	1,200	6 999 - No FF&E		
Academic	Research	Lab Support and Maintenance	Staging: Research	D-16		1	350	350	2 032 - Staging		
Academic	Research	Core Lab	Research Laboratory 13: Shared Instrument Suite	AR-06		1	3,824	3,824	1 081 - Deferred FF&E		
Academic	Research	Core Lab	Research Laboratory 14: Vivarium Suite	AR-22		1	6,176	6,176	1 067 - Research Laboratory 14: Vivarium		
Academic	Research	Core Lab	Research Laboratory 15: Greenhouse	AR-23		1	2,500	2,500	1 018 - Research Laboratory 15: Greenhouse		
Academic	Research	Core Lab	Research Laboratory 16: BSL3 Suite	AR-21		1	2,500	2,500	1 102 - Research Laboratory 16: BSL3 Suite		
Academic	Research	Core Lab	Research Server Center	AR-13		1	1,025	1,025	1 999 - No FF&E		
Housing	Residence Hall	Residential Floor	Bedroom: Single	SH-02		90	150	13,500	6 005 - Bedroom: Single		
Housing	Residence Hall	Residential Floor	Bedroom: Double	SH-01		610	190	115,900	6 005b - Bedroom: Double		
Housing	Residence Hall	Residential Floor	Bedroom: Triple	SH-32		130	245	31,850	6 005c - Bedroom: Triple		
Housing	Residence Hall	Residential Floor	Restroom: Dormitory	SH-03		200	255	51,000	6 999 - No FF&E		
Housing	Residence Hall	Residential Floor	Restroom: Gender Inclusive w/shower	GN-21		20	150	3,000	6 999 - No FF&E		
Housing	Residence Hall	Residential Floor	Lounge, Social (Students)	SH-04		30	500	15,000	9 040 - Lounge		AV09 - Recreation / Gaming Room
Housing	Residence Hall	Residential Floor	Study Room	SH-05	Study Room	30	200	6,000	7 060 - Study Room		
Housing	Apartment	Staff / Faculty in Residence	Apartment: Staff/Faculty in Residence	SH-09	Apartment: Staff/Faculty in Residence	12	850	10,200	6 001c - Apartment: Staff/Faculty in Residence		
Housing	Apartment	Staff / Faculty in Residence	Apartment: Staff/Faculty in Residence	SH-09	Faculty in Residence	12	850	10,200	6 001c - Apartment: Staff/Faculty in Residence		
Housing	Residence Hall	Community	Laundry: Housing	SH-18		4	600	2,400	6 084 - Laundry: Housing		
Housing	Residence Hall	Community	Lounge, Social (Students)	SH-04		16	725	11,600	9 034 - Lobby		AV06 - Public Space (lobbies, etc.)
Housing	Residence Hall	Community	Multi-Purpose: Housing	SH-22		4	750	3,000	6 042 - Multi-Purpose		AV08 - Large Meeting Rooms/Multipurpose
Housing	Residence Hall	Community	Study Room	SH-05	Lounge	16	250	4,000	7 040 - Lounge		
Housing	Residence Hall	Community	Recreation/Gaming	SH-21		4	625	2,500	9 081 - Deferred FF&E		AV09 - Recreation / Gaming Room
Housing	Residence Hall	Admin	Work Station 01	GN-03	Front Desk Support	8	50	400	7 069 - Workstation		
Housing	Residence Hall	Admin	Lobby	GN-19		2	185	370	6 034 - Lobby		
Housing	Residence Hall	Admin	Office 02: Administrator	GN-01		1	120	120	7 045 - Office: Private		
Housing	Residence Hall	Admin	Work Station 02	GN-04		7	65	455	7 069 - Workstation		
Housing	Residence Hall	Admin	Work Room	GN-12		1	250	250	7 068 - Workroom		
Housing	Residence Hall	Admin	Mail/Receiving	SH-17		1	2,003	2,003	6 999 - No FF&E		
Housing	Support & Maintenance		Storage: Bike/Gear	SH-25		2	625	1,250	6 999 - No FF&E		
Housing	Support & Maintenance		Trash/Recycling	GN-08		4	300	1,200	6 999 - No FF&E		
Housing	Support & Maintenance		Shop, Maintenance	GN-23	O&M	1	2,000	2,000	8 081 - Deferred FF&E		
Housing	Support & Maintenance		Storage: General	GN-22	Maintenance	1	500	500	9 058 - Storage: General		
Housing	Support & Maintenance		Storage: Custodial	GN-15		4	120	480	9 058 - Storage: General		
Housing	Support & Maintenance		Closet: Custodial	GN-28		4	100	400	9 014 - Closet: Custodial		
Student Life	Student Dining	Retail	Central Dining	GN-33	Central Dining	1	27,985	27,985	9 002 - Central Dining		POS_001 - Central Dining
Student Life	Student Activity	Retail	Gallery	AS-08		1	2,000	2,000	5 999 - No FF&E		AV11 - Audio Only Spaces
Student Life	Student Activity	Retail	Campus Store	AS-05		1	4,000	4,000	5 081 - Deferred FF&E		AV11 - Audio Only Spaces, POS_003 - Campus Store
Student Life	Student Activity	Conference Center	Ballroom	AS-07		1	7,000	7,000	4 004 - Ballroom		AV07 - Ballroom
Student Life	Student Activity	Conference Center	Lobby	GN-19		1	750	750	4 034 - Lobby		AV06 - Public Space (lobbies, etc.)
Student Life	Student Activity	Conference Center	Storage: General	GN-22	Shelter Storage	1	200	200	4 058 - Storage: General		
Student Life	Student Activity	Conference Center	Kitchen: Serving/Prep - Large	AS-09		1	500	500	4 999 - No FF&E		
Student Life	Student Activity	Conference Center	Conference Room 03: 24+ seats	GN-06	Meeting Room	3	1,500	4,500	7 103 - Conference Room 03: 72 seats		AV08 - Large Meeting Rooms/Multipurpose
Student Life	Student Activity	Conference Center	Classroom 5: 24 seat Seminar Room	C-05		4	500	2,000	4 011 - Conference Room 03: 24 seats		AV02 - 24 Seat Classroom, 30 seat classroom, class labs
Student Life	Student Activity	Conference Center	Storage: General	GN-22		1	350	350	9 058 - Storage: General		
Student Life	Student Activity	Clubs & Organizations	Office 01: Administrator	GN-02	Huddle Room	1	100	100	9 099 - Office: Huddle Room		AV04 - Huddle Room
Student Life	Student Activity	Clubs & Organizations	Work Station 02	GN-04	Student Activity Director	10	65	650	7 069 - Workstation		
Student Life	Student Activity	Clubs & Organizations	Work Station 01	GN-03	Student Government office	10	50	500	7 069 - Workstation		
Student Life	Student Activity										

Program Category	Program Subcategory	Program Unit	Area Type	ASG ID	Intended Use	Quantity	Size (ASG)	Total ASG	Priority	FF&E Package	IT Equipment Packages
Student Life	Enrollment Center	Financial Aid	Work Station 02	GN-04		23	65	1,495	7	069 - Workstation	
Student Life	Enrollment Center	Financial Aid	Work Station 01	GN-03		8	50	400	7	069 - Workstation	
Student Life	Enrollment Center	Financial Aid	Printer/Copy Room	GN-17		1	240	240	7	068 - Workroom	
Student Life	Enrollment Center	Financial Aid	Storage: General	GN-22		1	200	200	9	058 - Storage: General	
Student Life	Enrollment Center	Registrar	Office 02: Administrator	GN-01	Huddle Room	1	120	120	7	099 - Office: Huddle Room	AV04 - Huddle Room
Student Life	Enrollment Center	Registrar	Work Station 02	GN-04		15	65	975	7	069 - Workstation	
Student Life	Enrollment Center	Registrar	Work Station 01	GN-03		6	50	300	7	069 - Workstation	
Student Life	Enrollment Center	Registrar	Work Room	GN-12		1	120	120	7	068 - Workroom	
Student Life	Enrollment Center	Shared	Breakroom / Kitchenette	GN-11		1	250	250	9	006 - Break Room / Kitchenette	
Student Life	Enrollment Center	Shared	Lactation Room	GN-16		1	100	100	5	028 - Lactation Room	
Student Life	Enrollment Center	Shared	Conference Room 03: 24+ seats	GN-06		1	500	500	7	011 - Conference Room 03: 24 seats	AV03 - Conference Rooms
Student Life	Enrollment Center	Shared	Conference Room 02: 10-12 seats	GN-05		1	350	350	7	012 - Conference Room 02: 10-12 seats	AV03 - Conference Rooms
Student Life	Enrollment Center	Media Cats	Office 02: Administrator	GN-01	Huddle Room	1	120	120	7	099 - Office: Huddle Room	AV04 - Huddle Room
Student Life	Enrollment Center	Media Cats	Work Station 02	GN-04		9	65	585	7	069 - Workstation	
Student Life	Enrollment Center	Media Cats	Work Room	GN-12		1	300	300	7	068 - Workroom	
Student Life	Enrollment Center	Admissions	Work Station 02: Reception	GN-30		1	65	65	7	070 - Workstation: Reception	
Student Life	Enrollment Center	Admissions	Lobby	GN-19		1	335	335	5	034 - Lobby	AV06 - Public Space (lobbies, etc.)
Student Life	Enrollment Center	Admissions	Conference Room 02: 10-12 seats	GN-05		1	350	350	7	012 - Conference Room 02: 10-12 seats	AV03 - Conference Rooms
Student Life	Enrollment Center	Admissions	Office 02: Administrator	GN-01	Huddle Room	1	120	120	7	099 - Office: Huddle Room	AV04 - Huddle Room
Student Life	Enrollment Center	Admissions	Office 02: Administrator	GN-01	Director	1	120	120	7	045 - Office: Private	
Student Life	Enrollment Center	Admissions	Work Station 02	GN-04		34	65	2,210	7	069 - Workstation	
Student Life	Enrollment Center	Admissions	Work Station 01	GN-03		8	50	400	7	069 - Workstation	
Student Life	Enrollment Center	Admissions	Work Room	GN-12		1	500	500	7	068 - Workroom	
Student Life	Enrollment Center	Admissions	Storage: General	GN-22		1	2,500	2,500	9	058 - Storage: General	
Student Life	Enrollment Center	Admissions	Office 01: Administrator	GN-02	Huddle Room	9	100	900	7	099 - Office: Huddle Room	AV04 - Huddle Room
Student Life	Enrollment Center	Admissions	Staging	D-17		1	350	350	5	032 - Staging	
Student Life	Early Childhood		Classroom 8: Child	AS-53		2	1,100	2,200	5	009 - Classroom 8: Child	
Student Life	Early Childhood		Restroom: Child	AS-54		1	120	120	6	999 - No FF&E	
Student Life	Early Childhood		EECC Support Space	GN-27	Shared	1	130	130	5	078 - EECC Support Space	
Student Life	Early Childhood		Observation Room	AS-51		1	50	50	5	090 - Observation Room	
Student Life	Early Childhood		Restroom: Gender Inclusive	GN-20	Adult	1	60	60	6	999 - No FF&E	
Student Life	Early Childhood		Storage: General	GN-22	Central	2	210	420	9	058 - Storage: General	
Student Life	Early Childhood		Closet: Custodial	GN-28		1	100	100	9	014 - Closet: Custodial	
Student Life	Athletics	Aquatic Center	Lockers 02: Public	A-01	Men (Public)	1	400	400	6	037b - Lockers 02: Public	
Student Life	Athletics	Aquatic Center	Lockers 02: Public	A-01	Women (Public)	1	400	400	6	037b - Lockers 02: Public	
Student Life	Athletics	Aquatic Center	Locker: Gender Inclusive	AQ-26		2	80	160	6	999 - No FF&E	
Student Life	Athletics	Aquatic Center	Lockers 03: Coach	A-03		2	250	500	6	037 - Lockers: Athletics - Aquatic	
Student Life	Athletics	Aquatic Center	Work Station 02	GN-04	Coaches	8	65	520	7	069 - Workstation	
Student Life	Athletics	Aquatic Center	Office 02: Administrator	GN-01	Senior Administrator	2	120	240	7	045 - Office: Private	
Student Life	Athletics	Aquatic Center	Storage: General	GN-22		1	700	700	9	058 - Storage: General	
Student Life	Athletics	Aquatic Center	Laundry: Athletics	AQ-09		1	240	240	6	076 - Laundry: Athletics	
Student Life	Athletics	Aquatic Center	Pool Pump/Filtration Room	A-05		1	400	400	6	999 - No FF&E	
Student Life	Athletics	Aquatic Center	Restroom: Men	GN-13		1	350	350	6	999 - No FF&E	
Student Life	Athletics	Aquatic Center	Restroom: Women	GN-14		1	350	350	6	999 - No FF&E	
Student Life	Athletics	Aquatic Center	Storage: Custodial	GN-15		1	200	200	9	058 - Storage: General	
Student Life	Athletics	Aquatic Center	Tech/Control	A-06		1	120	120	6	092 - Tech/Control	
Student Life	Athletics	Fields	Ticket Office	A-10		2	60	120	9	064 - Ticket Office	POS_005 - Register, Scanner, Printer (1)
Student Life	Athletics	Fields	Lockers 01: Athletics	A-02	Men (Team)	1	950	950	6	039 - Lockers: Athletics - Team	
Student Life	Athletics	Fields	Lockers 01: Athletics	A-02	Women (Team)	1	950	950	6	039 - Lockers: Athletics - Team	
Student Life	Athletics	Fields	Storage: General	GN-22		1	700	700	9	058 - Storage: General	
Nonassignable Spaces	Interior		8DF Room	NA-07					8	081 - Deferred FF&E	
Nonassignable Spaces	Interior		Closet: Custodial	NA-14					9	014 - Closet: Custodial	
Nonassignable Spaces	Interior		Corridor: Primary Circulation	NA-12					5	999 - No FF&E	
Nonassignable Spaces	Interior		Corridor: Residential	NA-14					5	999 - No FF&E	
Nonassignable Spaces	Interior		Corridor: Secondary Circulation	NA-13					8	999 - No FF&E	
Nonassignable Spaces	Interior		Corridor: Utility	NA-02					8	999 - No FF&E	
Nonassignable Spaces	Interior		Electrical Closet	NA-09					8	999 - No FF&E	
Nonassignable Spaces	Interior		Elevator Lobby	NA-01					5	999 - No FF&E	
Nonassignable Spaces	Interior		Entrance Lobby	NA-11					5	081 - Deferred FF&E	
Nonassignable Spaces	Interior		IDF Room	NA-10					8	081 - Deferred FF&E	
Nonassignable Spaces	Interior		Lactation Room	GN-16					5	028 - Lactation Room	
Nonassignable Spaces	Interior		Lobby	GN-19					5	034 - Lobby	AV06 - Public Space (lobbies, etc.)
Nonassignable Spaces	Interior		Machine Room	NA-08					8	999 - No FF&E	
Nonassignable Spaces	Interior		Mechanical Room	NA-06					8	999 - No FF&E	
Nonassignable Spaces	Interior		Restroom: Gender Inclusive	GN-20					6	999 - No FF&E	
Nonassignable Spaces	Interior		Restroom: Gender Inclusive w/shower	GN-21					6	999 - No FF&E	
Nonassignable Spaces	Interior		Restroom: Men	GN-13					6	999 - No FF&E	
Nonassignable Spaces	Interior		Restroom: Women	GN-14					6	999 - No FF&E	
Nonassignable Spaces	Interior		Stairwell: Fire Exit	NA-05					2	999 - No FF&E	
Nonassignable Spaces	Interior		Stairwell: Primary Circulation	NA-03					5	999 - No FF&E	
Nonassignable Spaces	Interior		Stairwell: Secondary Circulation	NA-04					8	999 - No FF&E	
Nonassignable Spaces	Interior		Storage: Custodial	GN-15					9	058 - Storage: General	
Nonassignable Spaces	Interior		Trash Chute Room: Housing	GN-35					6	999 - No FF&E	
Nonassignable Spaces	Interior		Trash Chute Room: Non-Housing	GN-32					6	999 - No FF&E	
Nonassignable Spaces	Interior		Utility Structure	GN-18					6	999 - No FF&E	
Nonassignable Spaces	Exterior		Athletics: Shared Plaza	A-11					7	999 - No FF&E	
Nonassignable Spaces	Exterior		Bicycle Path: Primary	EX-01					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Bicycle Path: Secondary	EX-31					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Corporation/Service Yard	EX-03					8	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Courts: Tennis	EX-06					6	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Courts: Basketball	EX-07					6	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Early Childhood Outdoor Play Area	EX-33	Student Life: Early Childhood		3,000		5	999 - No FF&E	
Nonassignable Spaces	Exterior		Fields: Competition	EX-02			100,000		5	057 - Fields: Competition	
Nonassignable Spaces	Exterior		Fields: Recreation	EX-21			125,000		6	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Gateway	EX-05					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Landscaping: Core	EX-36					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Landscaping: Perimeter	EX-37					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Landscaping: Connecting	EX-38					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Parking: Offstreet - Central	EX-11					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Parking: Offstreet - Peripheral	EX-12					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Parking: Offstreet - South of Bellevue	EX-10					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Parking: Onstreet	EX-13					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Plaza: Formal	EX-15					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Plaza: Informal	EX-16					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Pool: Competition	EX-17			11,500		6	999 - No FF&E	
Nonassignable Spaces	Exterior		Research Server Center Yard	EX-35	Academic: Research : Core Lab				1	999 - No FF&E	
Nonassignable Spaces	Exterior		Roadway: Primary	EX-19					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Roadway: Secondary	EX-20					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Roadway: Emergency/Service Access	EX-22					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Service & Loading Zone	EX-09					9	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Transit Hub	EX-23					5	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Transit Shelter	EX-24					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Trash/Recycling Handling Yards	EX-25					6	081 - Deferred FF&E	
Nonassignable Spaces	Exterior		Walkway: Primary	EX-27					5	999 - No FF&E	
Nonassignable Spaces	Exterior		Walkway: Secondary	EX-28					8	999 - No FF&E	
Nonassignable Spaces	Exterior		Water Tank	EX-29					6	999 - No FF&E	

APPENDIX 2 – WORK BREAKDOWN STRUCTURE (WBS)

- 1.1. The following Work Breakdown Structure (WBS) shall be the basis for organizing all Work under the Contract Documents and shall be used to structure the Project Schedule and other cost control systems.
- 1.2. The WBS in this Appendix represents the minimum levels of the WBS that all cost and schedule information shall rollup to once the Project Schedule is fully developed.
- 1.3. The WBS shall conform to level structure as follows:

WBS Minimum Requirements (note: levels 4 & 5 provided as illustrative examples only)

- 1. Master Project Summary**
 - 1.1 Master Planning**
 - 1.1.1 (Elaborate key steps and approval processes)
 - 1.1.2 (Note – this could be integrated into the design function for Master Site Development)
 - 1.2 Master Site Development**
 - 1.2.1 (Elaborate key steps and approval processes similar to the examples in 1.4)
 - 1.2.2 Design
 - 1.2.3 Permitting
 - 1.2.4 Owner Submittals & Approvals
 - 1.2.5 Procurement & Prefabrication
 - 1.2.6 Site Construction (elaborate elements similar to the following)
 - 1.2.6.1 Mobilization
 - 1.2.6.2 Grading
 - 1.2.6.3 Utility infrastructure
 - 1.2.6.3.1 Shutdown notices
 - 1.2.6.3.2 Utility shutdowns
 - 1.2.6.4 Street infrastructure
 - 1.2.6.5 Site amenities & hardscape
 - 1.2.6.6 Lighting
 - 1.2.6.7 Landscaping
 - 1.2.7 Commissioning and Acceptance
 - 1.2.8 Owner Acceptance
 - 1.3 Offsite Improvements**
 - 1.3.1 (Elaborate key steps and approval processes similar to 1.2)
 - 1.3.2 Include Right of Way issues
 - 1.3.3 Coordination with County & City authorities
 - 1.4 Program Element 1 (i.e. housing)**
 - 1.4.1 Design
 - 1.4.1.1 Schematic Design
 - 1.4.1.2 50% Design Development
 - 1.4.1.3 100% Design development
 - 1.4.1.4 Permit set
 - 1.4.1.5 50% CD's
 - 1.4.1.6 95% CD's
 - 1.4.1.7 Final Construction Documents

- 1.4.2 Permitting
 - 1.4.2.1 Structural package submission
 - 1.4.2.2 Building permit submission & processing
 - 1.4.2.3 DSA submission & processing
 - 1.4.2.4 Fire Marshal submission
 - 1.4.2.5 Permit issuance
 - 1.4.2.6 Inspections (identified by system)
 - 1.4.2.7 Certificate of Occupancy process
- 1.4.3 Owner Submittals & Approvals
 - 1.4.3.1 (Elaborate details such as)
 - 1.4.3.2 Design submittals
 - 1.4.3.3 Approval processing and lead times
 - 1.4.3.4 Issuance of NTP 1 & NTP 2
 - 1.4.3.5 Product and material submittals anticipated
- 1.4.4 Procurement & Prefabrication
 - 1.4.4.1 (Elaborate details)
 - 1.4.4.2 Identify critical lead times
- 1.4.5 Site Preparation
 - 1.4.5.1 (Elaborate details)
- 1.4.6 Construction
 - 1.4.6.1 Structure
 - 1.4.6.2 Building Envelope
 - 1.4.6.2.1 Exterior wall framing (detailed activities)
 - 1.4.6.2.2 Exterior wall finish (detailed activities)
 - 1.4.6.2.3 Doors & windows (detailed activities)
 - 1.4.6.2.4 Roofing (detailed activities)
 - 1.4.6.3 MEP Rough
 - 1.4.6.4 Finishes
- 1.4.7 Commissioning & Acceptance
 - 1.4.7.1 (Elaborate details)
- 1.4.8 FF&E
 - 1.4.8.1 (Elaborate details)
- 1.4.9 Owner Acceptance
 - 1.4.9.1 (Elaborate details)
- 1.5 Program Element 2**
 - 1.5.1 (Elaborate details similar to 1.4)
- 1.6 Program Elements 3 thru X**
 - 1.6.1 (Elaborate details for each similar to 1.4)
- 1.7 Substantial Completion**
- 1.8 Final Acceptance**

APPENDIX 3 – MANUALS AND GUIDELINES

1. A Checklist of Woody Ornamental Plants of Oregon and Washington Guidelines
2. American Architectural Manufacturers Association (AAMA) 101/I.S.2/A440-08, North American Fenestration Standard (NAFS) - Specification for Windows, Doors, and Skylights
3. American Architectural Manufacturers Association (AAMA) 260, Specification for Pigmented Organic Coatings
4. American Architectural Manufacturers Association (AAMA) 611, Specification for Anodized Architectural Aluminum
5. American Architectural Manufacturers Association (AAMA) CW Design Guide for Curtain Wall and Window Wall
6. American Architectural Manufacturers Association (AAMA) Standard 1600 - Glass Design for Sloped Glazing and Structural Design Guidelines for Aluminum Framed Skylights
7. American Architectural Manufacturers Association (AAMA) / Window and Door Manufacturers Association (WDMA) / Canadian Standards Association (CSA). NAFS 101/I.S.2/A440
8. American Association of State Highway and Transportation Officials (AASHTO). A Policy on Geometric Design of Highways and Streets
9. American National Standards Institute (ANSI)/ASHRAE 110 - Fume Hood
10. American National Standards Institute, Inc. (ANSI)/TIA/EIA - Horizontal Cable
11. American National Standards Institute, Inc. (ANSI) /ASSE Z9.5-2012 - Laboratory Ventilation
12. American National Standards Institute, Inc. (ANSI) /SDI A250.6 – Hardware Reinforcing on Standard Steel Doors and Frames
13. American National Standards Institute, Inc. (ANSI) 137.1, Absorption Class P4
14. American National Standards Institute, Inc. (ANSI) 137.1, Flooring Slip Resistance
15. American National Standards Institute, Inc. (ANSI) A13-1 standards for Pipe Markers
16. American National Standards Institute, Inc. (ANSI) A156.3, 2001, Grade 1.certified
17. American National Standards Institute, Inc. (ANSI) Z60.1 2004 – American Standard for Nursery Stock
18. American National Standards Institute, Inc. (ANSI) Z358.1 2014 - Emergency. Eyewash and Shower Equipment
19. American National Standards Institute, Inc. (ANSI)/ ASSE Z9.5-2012 – American National Standard for Laboratory Ventilation
20. American National Standards Institute, Inc. (ANSI)/ Builders Hardware Manufacturers' Association (BHMA) A156.4 - Door Controls-Closers
21. American National Standards Institute, Inc. (ANSI)/ Builders Hardware Manufacturers' Association (BHMA) A156.9 - Cabinet Hardware Standards
22. American National Standards Institute (ANSI)/Steel Door Institute (SDI) A250.4, Test Procedure and Acceptance Criteria for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings
23. American National Standards Institute, Inc. (ANSI)/AAMA Standard 101-85 – Specification for Aluminum Prime Windows & Sliding Glass Door
24. American National Standards Institute, Inc. (ANSI)/ASHRAE 110 method - Laboratory Fume Hood Performance Testing
25. American National Standards Institute, Inc. (ANSI)/ICC A117.1 - Accessible and Usable Buildings and Facilities Standard

26. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 55-2013 - Thermal Environmental Conditions for Human Occupancy Standards
27. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 62.1-2013 - Ventilation for Acceptable Indoor Air Quality Standards
28. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 90.1-2013 - Energy Standard for Buildings Except Low-Rise Residential Buildings
29. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 160, Criteria for Moisture Control Design Analysis in Buildings
30. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Thermal Guidelines for Data Processing Environments as published by the TC9.9 Committee
31. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 62.1 per LEED EQEQ credit Enhanced Indoor Air Quality Strategies
32. American Society of Mechanical Engineers (ASME) A17.1-2010, Safety Code for Elevators and Escalators
33. American Water Works Association (AWWA) Standards
34. Architectural Woodwork Institute (AWI)'s Architectural Woodwork Quality Standards for Millwork Quality
35. ASTM A 121 – Standard Double Barbed Wire
36. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
37. ASTM C 1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass
38. ASTM C 635/C 635M, Table 1, "Direct Hung," (Acoustical Panel Ceilings-Metal Suspension System-Attachment)
39. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board
40. ASTM D 1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
41. ASTM D 2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
42. ASTM D 2672 - Standard Specification for Joints for IPS PVC Pipe Using Solvent Cement
43. ASTM D 3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
44. ASTM D 523 - Standard Test Method for Specular Gloss
45. ASTM D 5767 - Standard Test Methods for Instrumental Measurement of Distinctness-of-Image Gloss of Coating Surfaces
46. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials
47. ASTM F 1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing
48. ASTM F 1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing
49. ASTM F 2656-07K - Standard Test Method for Vehicle Crash Testing of Perimeter Barriers
50. ASTM/SDI 250.4, Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings
51. Builders Hardware Manufacturers Association (BHMA) Certified Products Directory
52. Builders Hardware Manufacturers Association (BHMA) A156 - Series Standards Accredited Procedures
53. California Building Energy Efficiency Standards, 10-103-A – Nonresidential Lighting Controls Acceptance Test Training and Certification and 10-103-B – Nonresidential Mechanical Acceptance Test Training and Certification

54. California Department of Transportation, Standards and specifications and Weight Limitations
55. California Department of Transportation Maintenance Manual, Volume 1, 2014.Chapter H – Bridges
56. California Green Building Standards Code California Code of Regulations, Title 24, Part 11 (CALGreen)
57. California Industrial Accident Commission, California Labor Code, Division 4 (Workers' Compensation and Insurance and Division 5 (Safety and Employment)
58. California Test 342 - Coefficient of Friction Measurement Method
59. Canadian Standards Association (CSA) B44-10 - Safety Code for Elevators
60. Concrete Polishing Association of America (CPAA) – Standards for Bonded Abrasive Polished Concrete (Concrete Finish Gloss)
61. Concrete Polishing Association of America (CPAA) Craftsman Level 1 – Concrete Polishing Standard
62. Department of State, SD-STD-02.01 *Certification Standard: Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates, Revision A*, March 2003
63. Door and Hardware Institute (DHI) A115-W - Hardware Preparation in Wood Doors with Wood or Steel Frames
64. Federation Internationale de Volleyball (FIVB) - standards for Sand Volleyball Courts
65. Forest Stewardship Council (FSC) Principles and Criteria. FSC-STD-01-001 (V4-0) FSC Principles and Criteria for Forest Stewardship
66. Forest Stewardship Council (FSC) STD-01-01, "FSC Principles and Criteria for Forest Stewardship."
67. Green Seal Standard GS 36, 2013 – The Green Seal Standard for Commercial Adhesives
68. Guidelines for Parking Facility Location and Design (May 1990), Institute of Transportation Engineers
69. Highway Capacity Manual 2000 – Level D of Service Description
70. Illuminating Engineering Society of North America (IES), ANSI/IESNA RP-8-00, American National Standard Practice for Roadway Lighting, 6/27/00
71. Illuminating Engineering Society of North America (IES), Lighting Handbook, 10th Edition
72. Illuminating Engineering Society of North America (IES), Technical Memorandum TM-15
73. International Code Council (ICC) AC193, Acceptance Criteria for Mechanical Anchors in Concrete Elements
74. International Code Council (ICC) AC70, Acceptance Criteria for Fasteners Power-Driven into Concrete, Steel and Masonry Elements
75. International Performance Measurement and Verification Protocol (IPMVP) Requirements for Metering and Monitoring Systems
76. International Tennis Federation (ITF) Requirements for Tennis Court Design
77. LEED 8.1 and 8.2 Daylight and views requirements
78. LEED Commissioning Tests Requirements for Gold Certification
79. LEED EQ 5 Credit Enhanced Indoor Air Quality Strategies
80. LEED EQ Credit Minimum Indoor Air Quality Performance
81. LEED for Existing Buildings: Operations & Maintenance (LEED EBOM) Requirements
82. LEED Gold Certification Requirements
83. LEED Green Building Rating System requirements for steel used in the product fabrication for Laboratory Bench Systems
84. LEED Requirements for Acoustical Panel Ceilings Recycled Content
85. LEED version 3.0 eligibility for VET (Vinyl Enhanced Tile) including Recycled Content
86. LEED version 3.0 guidelines for Bicycle Parking
87. LEED version 3.0 Requirements for Adhesives and Sealers VOC

88. LEED version 3.0 Requirements for Metering and Monitoring Systems
89. LEED version 3.0 Requirements of Sustainable Sites, Credit 8: Light Pollution Reduction
90. LEED version 3.0 Requirements of Water Efficiency, Outdoor Water Use Reduction
Credit WEc1: Water Efficient Landscaping
91. California Manual on Uniform Traffic Control Devices (CAMUTCD)
92. Merced County Department of Public Works Improvement Standards and Specifications
93. Merced Water and Sewer Standard in Water Conservation & Environmental Stewardship
Part 8
94. Model National Energy Code for Buildings (MNECB)
95. National Association of Architectural Metal Manufacturers Standard SW-1 - Aluminum
Windows Performance Class requirements
96. National Collegiate Athletic Association (NCAA) Division II Standards for Play Surfaces
97. National Collegiate Athletic Association (NCAA) Sand Volleyball Standards for Sand
Volleyball Courts
98. National Collegiate Athletic Association (NCAA) standards and recommendations for
Swimming and Diving Pool Design
99. National Fire Protection Association (NFPA) 13 - Standard For The Installation Of
Sprinkler Systems
100. National Fire Protection Association (NFPA) 24 - Standard for the Installation of Private
Fire Service Mains and Their Appurtenances
101. National Fire Protection Association (NFPA) 25 - Standard for the Inspection, Testing,
and Maintenance of Water-Based Fire Protection Systems
102. National Fire Protection Association (NFPA) 45 - Standard on Fire Protection for
Laboratories Using Chemicals
103. National Fire Protection Association (NFPA) 70E - Standard for Electrical Safety in the
Workplace®
104. National Fire Protection Association (NFPA) 72 - National Fire Alarm and Signaling
Code
105. National Fire Protection Association (NFPA) 82 - Standard on Incinerators and Waste
and Linen Handling Systems and Equipment
106. National Fire Protection Association (NFPA) 110 - Standard For Emergency And
Standby Power, Section 8.4
107. National Fire Protection Association (NFPA) guidelines for Roof Termination Vent Units
108. National Fire Protection Association (NFPA), Emergency Power Supply Systems
guidelines
109. National Roofing Contractors Association - Roofing and Waterproofing Manual
Standards
110. National Sanitation Standard 49 - Class II (Laminar Flow) Biohazard Cabinetry
111. North American Fenestration Standard (NAFS) Specification for Windows, Doors, and
Skylights
112. Scientific Equipment and Furniture Association (SEFA) 8 standards
113. Scientific Equipment and Furniture Association (SEFA) Fume Hood Standards
114. Sheet Metal and Air Conditioning Contractors' National Association publication,
Architectural Sheet Metal Manual
115. Sheet Metal Contractor's National Association (SMACNA) Standards and Guidelines
116. State of California, Department of Health Services, "Criteria for the Separation of Water
and Sanitary Sewer."
117. Steel Door Institute (SDI) Standards, SDI 111-09, Recommended Details for Standard
Steel Doors, Frames, Accessories and Related Components
118. Technical Services Information Bureau, Plaster Assemblies Manual "Online"
119. Telecommunications Industry Association (TIA)/EIA-606-A Administration Standard

120. The American College & University Presidents' Climate Commitment (ACUPCC) Standards
121. The Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC), – The Eighth Edition of the Guide for the care and Use of Laboratory Animals (NRC 2011)
122. The Dimensions of Parking (5th Edition), Urban Land Institute
123. UC Merced Campus standards for Valves and Label of Piping
124. UC Merced Campus Water Action Plan
125. UC Merced Donor Signage Package
126. UC Merced Graphic Standards
127. UC Merced Interior Signage Package
128. UC Merced Tree Planting and Early Care Guidelines
129. UC Merced Tree Species Selection Candidates Handbook
130. United States Department of Agriculture (USDA) United States Department of Agriculture Sanitation and Quality Standards USA North 811 Program Guidelines
131. USA Volleyball Beach Rules for Sand Volleyball Courts
132. VOC limits of LEED MRc4 and of San Joaquin Valley Unified Air Pollution Control District; whichever is more stringent
133. Water Use Classification of Landscape Species (WUCOLS). WUCOLS III and the Landscape Coefficient Method – A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California
134. Weant, Robert A. and Levinson, Herbert S., Parking (1990)
135. Windows and Door Manufacturers Association (WDMA) I.S.-1.A Architectural Wood Flush Doors Standards

APPENDIX 4 – PROJECT SCHEDULE, PROJECT MANAGEMENT PLAN AND WORK SUBMITTALS

APPENDIX 4-A	PROJECT SCHEDULE AND PROJECT MANAGEMENT PLAN SUBMITTALS
APPENDIX 4-B	FACILITIES SUBMITTALS
APPENDIX 4-C	CENTRAL PLANT EXPANSION SUBMITTALS
APPENDIX 4-D	UTILITY SUBMITTALS

APPENDIX 4-A – PROJECT SCHEDULE AND PROJECT MANAGEMENT PLAN SUBMITTALS

Part A: Required prior to NTP 1		Due Date
1.	Preliminary Project Schedule (Section 2.4.2.1 (Preliminary Project Schedule) of the Technical Requirements)	30 days prior to the target date for Owner's issuance of NTP 1
2.	Reporting structure section of the PMP (Section 2.7.1.3.2 (Reporting) of the Technical Requirements)	
3.	Staffing Management Plan (Section 2.7.2.1 (Staffing Management Plan) of the Technical Requirements)	
4.	Data Management and Document Control Plan (Section 2.7.2.4 (Data Management and Document Control Plan) of the Technical Requirements)	
5.	Design Quality Management Plan (Section 2.5.1.3 (Design Quality Management Plan) of the Technical Requirements)	
6.	Design Management Plan (Section 2.7.3.2 (Design Management Plan) of the Technical Requirements)	
Part B: Required prior to NTP 2		Due Date
1.	Baseline Project Schedule (Section 2.4.2.2 (Baseline Project Schedule) of the Technical Requirements)	30 days prior to the target date for Owner's issuance of NTP 2
2.	Public Information and Communications Plan (Section 2.7.2.3 (Public Information and Communications Plan) of the Technical Requirements)	
3.	Construction Quality Management Plan (Section 2.5.1.4 (Construction Quality Management Plan) of the Technical Requirements)	
4.	Environmental Management Plan (Section 2.7.2.6 (Environmental Management Plan) of the Technical Requirements)	
5.	Health and Safety Plan (Section 2.7.2.7 (Health and Safety Plan) of the Technical Requirements)	
6.	Emergency Management and Disaster Recovery Plan (Section 2.7.2.8 (Emergency Management and Disaster Recovery Plan) of the Technical Requirements)	
7.	Construction Management Plan (Section 2.7.3.3 (Construction Management Plan) of the Technical Requirements)	
8.	Utility Shutdown Plan (Section 2.7.3.7 (Utility Shutdown Plan) of the Technical Requirements)	
9.	Final borrow pit area drawings showing proposed topographic slopes.	
10.	Quality Management Plan (Section 2.5.1.1 (Design and Construction Quality Management Plan) of the Technical Requirements)	
11.	Quality Management Organization (Section 2.5.1.2 (Quality Management Organization) of the Technical Requirements)	
Part C: Required for Commissioning		Due Date
1.	Commissioning Plan (Section 3.11.4 (Commissioning Plan) of the Technical Requirements)	No later than 30 days prior to the commencement of the commissioning process <u>Section 3.11.4.1)</u>

2. Central Plant Expansion Commissioning Plan	
Part D: Required prior to Occupancy Readiness	
1. O&M Quality Management Plan (<u>Section 2.5.1.5</u> (O&M Quality Management Plan) of the Technical Requirements)	30 days prior to Occupancy Readiness for First Delivery Facilities
2. Sustainability Measurement and Verification Plan	
3. Energy Management and Conservation Plan (<u>Section 2.7.2.9</u> (Energy Management and Conservation Plan) of the Technical Requirements)	
4. Operations and Maintenance Plan (<u>Section 2.7.4.1</u> (Operations and Maintenance Plan) of the Technical Requirements)	
5. Master Maintenance Plan (<u>Section 2.7.4.2</u> (Master Maintenance Plan and Renewal Work Plan) of the Technical Requirements)	
6. Renewal Work Plan (<u>Section 2.7.4.2</u> (Master Maintenance Plan and Renewal Work Plan) of the Technical Requirements)	
7. Customer Service Center (CSC) Plan (<u>Section 2.7.4.3</u> (Customer Service Center Plan) of the Technical Requirements)	
8. Refrigerant Management Plan (<u>Section 2.7.4.4</u> (Refrigerant Management Plan) of the Technical Requirements)	
Part E: Required during the Operating Period	
1. Handback Renewal Work Plan (<u>Section 5.1</u> (Handback Renewal Work Plan) of the Technical Requirements)	5 years prior to the end of the Term
2. Transition and Training Plan (<u>Section 2.7.5</u> (Transition and Training Plan) of the Technical Requirements)	12 months prior to the end of the Term

APPENDIX 4-B – FACILITIES SUBMITTALS

Required prior to NTP 1		Due Date
Selected software platform for the PMCS (<u>Section 2.4.10.1.2</u> of the Technical Requirements)		30 days prior to the target date for Owner's issuance of NTP 1
Project Master Plan (<u>Section 3.4.1</u> (Project Master Plan) of the Technical Requirements)		
Signage Master Plan (<u>Section 3.8.13.1.3</u> of the Technical Requirements)		
FF&E		Due Date
FF&E Submittal (Section 3.9.1 of the Technical Requirements)		Within 60 days following the Effective Date
Schematic Design (SD) Work Submittals		Due Date
100% schematic design		As provided in the Project Schedule
<u>Code analysis</u> The code analysis shall consist of an outline of applicable provisions of building codes which apply to this Project. The outline shall include a written report and diagrammatic drawings which delineate the design criteria (e.g., exit paths, travel distances, required exits, rated walls, rated corridors, building occupancy, construction type, and fire zones). This graphic documentation of the design criteria shall be updated with each subsequent submittal.		
<u>Area tabulation</u> The area tabulation shall consist of a space-by-space comparison of the Schematic Design Work Submittal documents' assigned square footage (ASF) with the Program's ASF. The area tabulation shall include overall gross square feet (OGSF) and provide a tabulation of rentable square footage (RSF), if applicable, according to specifications of the Building Owners and Managers Association. These tabulations shall be made by floor and program component and shall include totals for the Building or renovated area as a whole. The area tabulation shall include a calculation of the efficiency ratios (ASF/GSF).		
<u>Design intent narrative</u> Developer shall include an updated design intent narrative based on the design intent narrative in the Proposal (<u>Section 3.1.1</u> (Owner's Project Goals) of the Technical Requirements).		
<u>Material board</u> Developer shall include an updated material board, if applicable, based on the material board in the Proposal.		
<u>Civil drawings</u> Civil drawings shall include: <ul style="list-style-type: none">• site demolition plan showing existing structures and Utilities to be removed by Developer;• grading plans showing existing and proposed contours at one (1) foot intervals;		

<ul style="list-style-type: none"> • utility plans showing: <ul style="list-style-type: none"> (a) all existing Utilities and underground structures within the Project Site based on both the information provided by Owner and on Developer's field investigation; (b) off-site Utilities in the vicinity required for this Project, and all points of connection; and (c) proposed points of connection to existing Utilities including the proposed method of service and routing for electrical power, chilled water, steam, domestic water, fire water, utility water, sanitary sewer, storm drain, natural gas, telephone, and fire alarm systems, as applicable. Exterior pad-mounted transformers and site distribution shall be included. 	
<p><u>Landscape drawings</u> The landscape design plan shall show conceptual hardscape and planting.</p>	
<p><u>Architectural drawings</u> Architectural drawings shall include:</p> <ol style="list-style-type: none"> 1. Site plan showing: <ul style="list-style-type: none"> (a) overall dimensions of the Facilities; (b) existing structures and streets (with names) within a radius of three hundred (300) feet of the Project Site perimeter with the distances from each proposed new Facility exterior walls to existing buildings, property lines (setbacks), and roadways; (c) major new exterior elements, which shall include streets, service drives, easements, loading docks, parking areas (cars and bicycle), paved areas, walks, stairs, ramps, pools, retaining walls, fences, fire hydrants, recycling, and trash container locations and equipment; and (d) elevations of Building entrances and the placement of ramps and other provisions for disabled access to the Project Site and Facilities. Also depicted shall be the parking area and drop-off location nearest the Building, and the routes and travel distances to all Building entrances. 2. Site sections shall be included as needed to explain changes in levels within the proposed Building(s) as related to the Project Site. 3. Floor plans showing: <ul style="list-style-type: none"> (a) locations, room names, sizes (in ASF), and space numbers for all Areas and required gross area; (b) overall dimensions of major elements of the Facilities; (c) Building elements such as walls, columns, doors, windows, openings, and major built-in equipment; and (d) means for complying with applicable disabled access codes. 4. Demolition plan 5. Sections shall be provided as needed to explain structure and unusual design features, and shall show existing and proposed grades. 6. Elevations shall include all elevations of the Facility, floor-to-floor dimensions, the overall Building height, and elevations of existing neighboring Buildings, as applicable. 	

<u>Structural drawings</u> – for each level of the Facility Structural drawings shall provide a conceptual structural framing plan of a typical floor that indicates the grid system (dimensioned), columns, shear walls, and related items.	
<u>Plumbing drawings</u> Floor plans shall show primary risers and mechanical room space for pumping, etc.	
<u>HVAC drawings</u> HVAC drawings shall provide a conceptual single-line mechanical diagram showing major ducts and equipment. The sizes and locations of major equipment items including cooling towers, chillers, pumps, fans, air-handling units, compressors, and related items, shall be identified.	
<u>Electrical drawings and catalog cuts</u> Electrical drawings shall provide a conceptual single-line diagram showing permanent as well as temporary points of connection to high-voltage, telephone, and signal systems. Electrical drawings shall also include: <ol style="list-style-type: none"> 1. method of service (Facility or local Utility) showing primary service to loop switch; 2. major transformers and transformer substations; 3. secondary service to switchboards, motor control centers, distribution boards and panel boards for power and lighting; and 4. major components of the emergency power system. 	
LCA Report (<u>Section 3.2.3.3</u> of the Technical Requirements)	
Project entryway treatment (<u>Section 3.4.14.9</u> (Project Entryway Treatment) of the Technical Requirements)	
Design Development (DD) Work Submittals	
Due Date	
100% design development	As provided in the Project Schedule
<u>Code analysis</u> Developer shall include an updated code analysis based on the code analysis submitted as part of the Schematic Design Work Submittal.	
<u>Area tabulation</u> Developer shall include an updated area tabulation based on the area tabulation submitted as part of the Schematic Design Work Submittal.	
<u>Design intent narrative</u> Developer shall include an updated design intent narrative based on the design intent narrative submitted as part of the Schematic Design Work Submittal.	
<u>Material board</u> Developer shall include an updated material board, if applicable, based on the material board submitted as part of the Schematic Design Work Submittal.	

Civil Drawings

Civil drawings shall include:

- grading plans, updated to show the general method of site drainage as affected by each Facility, including baseline and benchmark references and elevations of major exterior elements including those for stairways, walls, and terraces;
- utility plans, updated to show all Utility lines, ductbanks, tanks and equipment that are to be abandoned, removed, or rerouted; and;
- conceptual staging and bicycle routing plan showing contractor staging, roadways and parking areas. Impacted bicycle and pedestrian pathways and proposed rerouting shall be identified.
- trench design and protection in accordance with Section 2.6.3.4.5 of the Technical Requirements.

Landscape drawings

The landscape plans shall show hardscape, planting and other improvements.

Architectural drawings

Architectural drawings shall include:

1. Floor plans, showing:
 - (a) corridors (with widths);
 - (b) door swings;
 - (c) locations and fire ratings of all fire separations, exit enclosures, fire doors, and similar elements, as required by applicable codes;
 - (d) accessible toilets and drinking fountains;
 - (e) plumbing fixtures such as lavatories, floor drains, water closets, urinals, service sinks, drinking fountains, eyewash fountains, deluge showers, and fire-hose cabinets;
 - (f) built-in features such as fixed auditorium seats, kitchen equipment, display cases, counters, shelves, lockers, laboratory benches, casework, glass washers, sterilizers, fume hoods, and similar items;
 - (g) movable furniture, which in most cases is "not in contract" (NIC), including "interior landscape" partitions and equipment. Differentiate between movable furniture and equipment and built-in furniture and equipment; and
 - (h) reference all sections and elevations.
2. Roof plans showing associated equipment, slopes, ridges, drains, and other items.
3. Elevations including:
 - (a) Building elements including penthouses, entrances, windows, doors, stairs, platforms, louvers, vents, exhaust stacks, retaining walls, and similar items, and proposed finished grades; and
 - (b) window sill and head heights
4. Sections including:
 - (a) longitudinal and transverse sections for each major area, indicating floor elevations, existing and proposed exterior grades, ceiling heights, pipe tunnels, unexcavated areas, basement areas, rooflines, and parapets. Show cuts for connections to adjoining Buildings where appropriate;
 - (b) small-scale plan or diagram (if necessary) to indicate section

<p>lines for each elevation and section; and</p> <p>(c) provisions for HVAC distribution and hood venting.</p> <p>5. Large scale drawings including:</p> <p>(a) classrooms and lecture halls;</p> <p>(b) kitchens and related service areas;</p> <p>(c) laboratories and laboratory support areas;</p> <p>(d) toilet and locker rooms; and</p> <p>(e) other areas of special design with notes related to materials and design.</p> <p>6. Schedules including:</p> <p>(a) door schedule indicating each door type, size, material, hardware group and pertinent comments;</p> <p>(b) window schedule indicating each window type, size, material, and pertinent comments; and</p> <p>(c) preliminary interior finish schedule indicating the material, texture, and color of each finish material proposed for use in the Project.</p>	
<p><u>Structural drawings</u> - for each level of the Facility</p> <p>Structural drawings shall provide plans for each level of the structure at the same scale as that used for the architectural plans. Indicate the grid system (dimensioned), columns, load-bearing walls, shear walls, footings, and related items.</p>	
<p><u>Plumbing drawings</u></p> <p>Floor plans shall show:</p> <p>1. plumbing fixtures and any equipment requiring plumbing service (including pumps, tanks, generators, pressure-reducing valves, etc.) showing their locations and required piping connections;</p> <p>2. main waste lines and stacks and vents as well as all service mains, including those for water, air, gas, and vacuum;</p> <p>3. plumbing chases in multi-storied Buildings; and</p> <p>4. fire water mains, standpipes and hose racks.</p>	
<p><u>HVAC drawings</u></p> <p>1. Floor plans shall show:</p> <p>(a) mechanical equipment including air handling units, chillers, cooling towers, pumps, converters, expansion tanks, boilers, fans, fan coil units, heat exchangers, fume hoods and other equipment;</p> <p>(b) mains for each duct system;</p> <p>(c) typical supply and return air zones for each Area. A typical air zone shall include the terminal unit with all applicable branch ducts and air outlets and inlets; and</p> <p>(d) typical exhaust air duct for each type of application (hoods, toilet rooms, janitors' closets, transformers, mechanical/electrical equipment rooms, and other rooms as required for a satisfactory indoor environment.) A typical duct shall include an air inlet and a source destination for exhaust air.</p> <p>2. Large scale drawings of equipment rooms shall show layout of all equipment rooms to ensure that the proposed equipment will fit in the assigned space.</p>	

<u>Electrical drawings and catalog cuts</u> Electrical drawings shall include: <ol style="list-style-type: none"> 1. Single line diagrams shall be updated to include each load center unit substation, telephone equipment rooms, and closets. 2. Floor plans shall show layouts for power, signal, and communications on one set of drawings, and the lighting layouts shall be shown on a different set of drawings. Include lighting fixtures in typical offices, laboratories, corridors, examination rooms, and similar spaces. A schedule shall be used to show detail. 3. Catalog cuts shall be provided for all proposed lighting fixtures. 4. Large scale drawings shall include a layout of all equipment rooms to ensure that the proposed equipment will fit in the allotted space. 	
<u>Outline specification</u> Outline specifications shall include a detailed description of all Building components and Facility Systems with an index showing all divisions and sections intended to be used and all technical sections in outline specification format.	
<u>Sole source list</u> Developer shall submit a list of each item of equipment and/or each Facility System to be designated as sole source by the notation in the documents, "or equal (no known equal)". This list shall include: <ol style="list-style-type: none"> 1. a description of each item of equipment and/or each system; 2. the estimated cost of each item of equipment and/or each system; and 3. a justification as to why each item of equipment and/or each Facility System needs to be from a sole source. Include brief performance specifications detailing those features which, because they are unique or state-of-the-art, or the preclude use of an alternative product. 	
<u>EMS/HVAC automatic temperature controls</u> Developer shall specify automatic energy management system (EMS)/HVAC controls systems that communicate with and are interoperable with the CMMS.	
<u>Project entryway treatment</u> Developer shall include an updated project entryway treatment based on the project entryway treatment submitted as part of the Schematic Design Work Submittal.	
Construction Documents (CD) Work Submittals	
50% construction documents	As provided in the Project Schedule
<u>Code analysis</u> Developer shall include an updated code analysis based on the code analysis submitted as part of the Design Development Work Submittal.	
<u>Area tabulation</u> Developer shall include an updated area tabulation based on the area tabulation submitted as part of the Design Development Work Submittal.	

<p><u>Design intent narrative</u> Developer shall include an updated design intent narrative based on the design intent narrative submitted as part of the Design Development Work Submittal.</p>	
<p><u>Material board</u> Developer shall include an updated material board, if applicable, based on the material board submitted as part of the Design Development Work Submittal.</p>	
<p><u>Drawings and specifications</u> The drawings and specifications shall include:</p> <ol style="list-style-type: none"> 1. A cover sheet and regulatory compliance drawings, including: <ol style="list-style-type: none"> (a) title sheet with index, general notes, legends, and a small-scale Project Site location map; and (b) code compliance calculations and diagrams. 2. Civil drawings, including: <ol style="list-style-type: none"> (a) existing civil survey; (b) site demolition plan; (c) site utilities plan; <ol style="list-style-type: none"> (i) coordinate size and location for all stub outs for connection by Architectural, Mechanical, Plumbing, Electrical, etc. Indicate continuation sheet number; (ii) indicate identification numbers on all new manholes, valve boxes, cleanouts, lift stations, etc. (iii) completely design steam and condensate lines, steam vaults, expansion legs, anchors and guides; (iv) show locations, sizes, and elevations of the Project Site sewer, street water main, and water service into the Facilities; and (v) trench design and protection in compliance with <u>Section 2.6.3.4.5</u> of the Technical Requirements. (d) Project Site plan; (e) rough grading plan, including drainage structures; (f) Project Site profile sections; and (g) details. 3. Landscape drawings, including: <ol style="list-style-type: none"> (a) finished grading plan; (b) hardscape (paving) plan; (c) irrigation plan; (d) planting plan; (e) hardscape details (walls, walks, planters, etc.); (f) irrigation details; (g) planting details; and (h) other details as appropriate. 4. Architectural drawings, including: <ol style="list-style-type: none"> (a) reflected ceiling plans showing all penetrations; (b) details; and (c) room numbers in compliance with <u>Section 3.8.13.3</u> (Interior Signage) of the Technical Requirements. 5. Structural drawings, including: <ol style="list-style-type: none"> (a) plans that indicate the location, type of member, size, and material of each structural element for foundations, floors, roofs, and any intermediate levels. List assumed safe bearing pressures on soils and ultimate strengths of concrete; (b) schedules (beam, column and slab); 	

<ul style="list-style-type: none"> (c) details of all connections, assemblies, expansion joints, and similar items; and (d) details of the structural framing systems required to support nonstructural elements and fixed equipment. <p>6. Plumbing drawings, including:</p> <ul style="list-style-type: none"> (a) floor plans showing: <ul style="list-style-type: none"> (i) locations, sizes, and elevations of the Building sewer, drains, waste, and waste vent stacks with connections to drains, fixtures, and equipment; (ii) locations and sizes of hot, cold, and circulation water mains, branches, and risers from the service entrance and tanks; (iii) fire-extinguishing equipment such as sprinklers and wet/dry standpipes; and (iv) locations and sizes of natural gas, vacuum, and medical gas systems. (b) Riser diagrams for each system shall show all plumbing stacks with vents, water risers, and fixture connections for multi-story Buildings; materials, gauges, and sizes for all elements. (c) Sections shall show structural, HVAC, and piping systems through congested areas. <p>7. HVAC drawings, including:</p> <ul style="list-style-type: none"> (a) mechanical floor plans showing the complete HVAC systems including: <ul style="list-style-type: none"> (i) heating and steam mains, including branches, with pipe sizes; (ii) air-conditioning systems including refrigerators, water and refrigerant piping, and duct work; (iii) exhaust and supply ventilating systems showing duct sizes for steam or water connections and piping; and (iv) air and piping systems, including all branches, on each floor plan; (b) detailed floor plans and sections clearly indicating the work required for all mechanical equipment rooms; (c) air balance schedule indicating the cubic feet per minute (CFM) of outside air, supply air, return air, and exhaust air for each air system; (d) elevations of built-up fan units to ensure required airflows and access to the component parts of the units; (e) flow diagram for each of the following types of water systems, including chilled water, condenser water, hot water and others as needed to clearly define the scope of work; (f) riser diagram for each type of system (air, chilled water, heating hot water, and specialty systems); (g) mounting details; and (h) sequence of operations diagram. <p>8. Electrical drawings, including:</p> <ul style="list-style-type: none"> (a) electrical service entrance and its service switches, the service feeds to the public service feeders, and the characteristics of the light and power currents; (b) transformers and their connections, whether in the Building or on the Project Site; (c) main switchboard, power panels, light panels, and associated equipment; (d) feeder and conduit sizes; 	
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<ul style="list-style-type: none"> (e) light fixtures, receptacles, switches, and power outlets; (f) telephone outlets, conduits, terminal cabinets, and backboards; (g) complete fire alarm system including its connection to the Facility System(s); (h) emergency electrical power system including generator transfer switches, fuel tanks, and all auxiliaries; (i) other systems as required; and (j) mounting details. <p>9. Updated specifications based on the outline specifications submitted as part of the Design Development Work Submittal.</p>	
<p><u>Structural, mechanical, and electrical calculations:</u> Developer shall clearly list all design criteria, assumptions, and references used for structural, mechanical and electrical calculations. Calculations shall be arranged in a clear manner and shall include schematic diagrams and spreadsheets where necessary together with information sufficient to show compliance with applicable Law and the Contract Documents. Calculations shall be checked and stamped by a Registered Professional in the applicable discipline. Submitted calculations shall include:</p> <ol style="list-style-type: none"> 1. Structural calculations, including: <ul style="list-style-type: none"> (a) preface with a statement outlining the basis for the structural design and indicating the manner in which the proposed Facility will resist vertical loads and horizontal forces; (b) structural diagrams shall be accompanied by computations, stress diagrams and other pertinent data and shall be complete to the extent that calculations for individual structural members can be readily interpreted; (c) list assumed safe bearing pressures on soils and ultimate strengths of concrete; and (d) where unusual conditions occur, submit additional data as is pertinent. 2. Mechanical calculations, including: <ul style="list-style-type: none"> (a) heating and cooling load calculations; (b) psychometric charts and air conditions; (c) fan and coil sizing calculations and selection data; (d) sizing calculations and selection data for chillers, boilers, cooling towers, heat exchangers, packaged air conditioners, etc.; (e) ductwork and pipe sizing calculations (including flows per room or coil, sizing method used and pressure drops); (f) domestic/industrial hot water sizing calculations, including pump sizing; and (g) structural and seismic calculations for equipment supports (may be submitted with structural calculations). 3. Electrical Calculations, including: <ul style="list-style-type: none"> (a) summary of electrical loads used in calculating transformer size; (b) fault interruption calculations; (c) point-by-point lighting analysis for all interior rooms and exterior areas showing light level contours graphically; and (d) structural and seismic calculations for equipment supports (may be submitted with structural calculations). 4. Plumbing, communications, and other specialized Facility System calculations. 	

<u>Sole source list</u> Developer shall include an updated sole source list based on the sole-sourced list submitted as part of the Design Development Work Submittal.	
<u>Final Program</u> Developer shall include a final Program based on <u>Appendix 1</u> (Program) to the Technical Requirements, updated to reflect any revisions made as a result of the D&C Work.	
<u>Final backcheck construction documents</u> Developer shall include a final backcheck submittal that either (i) incorporates any changes or corrections required by Owner, Owner-Related Entities or Governmental Entities as a result of their review of the Construction Documents Work Submittal, or (ii) is accompanied by a written statement as to why such changes were not incorporated. Owner may reject Developer's explanation and require Developer to make the changes or corrections to the Construction Documents Work Submittal.	
Schedule of activities that will impact traffic (<u>Section 2.4.7.6.1(e)</u> of the Technical Requirements)	
<u>Project entryway treatment</u> Developer shall include an updated project entryway treatment based on the project entryway treatment submitted as part of the Design Development Work Submittal.	
Final Design Documents	
Due Date	
Final Project Master Plan (<u>Section 3.4.1.1.3</u> of the Technical Requirements)	With Final Design Documents
100% construction documents	As provided in the Project Schedule
Base Energy Consumption Targets (<u>Appendix 17</u> (Energy Utilities Management) to the Agreement, <u>Section 1.2</u>)	
Final code analysis	
Final area tabulation	
Final material board	
Final drawings and specifications: <ul style="list-style-type: none"> • cover sheet and regulatory compliance drawings; • civil drawings; • landscape drawings, including room numbers in compliance with <u>Section 3.8.13.3</u> (Interior Signage) of the Technical Requirements; • architectural drawings; • structural drawings; • plumbing drawings; • HVAC drawings; • electrical drawings; • specifications. 	
Structural, mechanical and electrical calculations	

LCA Report (<u>Section 3.2.3.3</u> of the Technical Requirements)	
Updated final backcheck Construction Documents	
Required for Commissioning	
Due Date	
Final Commissioning Tests reports (<u>Section 3.11.6.2</u> (Test Results) of the Technical Requirements)	No later than 15 Business Days following the Commissioning Tests completion
Operating and maintenance manuals (<u>Section 3.11.4.5</u> (Preparation of Operating and Maintenance Manuals) of the Technical Requirements)	No later than 90 days after the commissioning process completion
Required prior to Occupancy Readiness	
Due Date	
Copies of all Governmental Approvals	15 days prior to Occupancy Readiness
A certified schedule of final Areas calculated in accordance with the Contract Documents	30 days prior to Occupancy Readiness
Energy Utilities Monitoring System (<u>Appendix 17</u> (Energy Utilities Management) to the Agreement, <u>Section 2.2(b)</u>)	90 days prior to the target Occupancy Readiness Date for the First Delivery Facilities
Punch Lists (<u>Section 4.9.3</u> (D&C and Facility Punch Lists) of the Agreement)	15 days prior to the target Occupancy Readiness Date for each Facility or Building
Required after Occupancy Readiness	
Due Date	
Project Record drawings relating to security systems within the Project Site, including perimeter security, locking systems, camera and television security systems (for each Facility)	60 days after Occupancy Readiness
Acoustical performance test reports with normal occupant loads and Project system operation, including emergency generator under load	180 days after Occupancy Readiness
Required prior to Final Acceptance	
Due Date	
As-Built Plans and Project Record drawings for each Facility and the Project Site.	30 days prior to the target Final Acceptance Date

APPENDIX 4-C – CENTRAL PLANT EXPANSION SUBMITTALS

Conceptual Design		Due Date
Conceptual Design 1. Design Review 2. Commissioning Review 3. Constructability Review 4. Capacity Review 5. System Control Strategy Review		As provided in the Project Schedule
Schematic Design		Due Date
100% Schematic design 1. Design Review 2. Commissioning Review 3. Constructability Review 4. Capacity Review 5. System Control Strategy Review		As provided in the Project Schedule
Design Development		Due Date
50% Design Development 1. Design Review 2. Commissioning Review 3. Constructability Review 4. Capacity Review 5. System Control Strategy Review 6. Product Data Sheet		As provided in the Project Schedule
100% Design Development 1. Design Review 2. Commissioning Review 3. Constructability Review 4. Capacity Review 5. System Control Strategy Review 6. Product Data Sheet		As provided in the Project Schedule
Construction Documents		Due Date
50% Construction Documents 1. Design Review 2. Commissioning Review 3. Constructability Review 4. Capacity Review 5. System Control Strategy Review		As provided in the Project Schedule

6. Product Data Sheet	
100% Construction Documents 1. Design Review 2. Commissioning Review 3. Constructability Review 4. Capacity Review 5. System Control Strategy Review 6. Product Data Sheet	As provided in the Project Schedule
Other CPE Submittals	
Due Date	
Preliminary Commissioning Plan	28 days after engagement of Commissioning Specialist
Final Commissioning Plan	28 days prior to the commencement of Pre-Functional Checks
Pre-Functional Test Schedule and Procedures	14 days prior to the commencement of Pre-Functional Tests
Electrical Load Bank Plan	28 days prior to energizing CEP equipment, in accordance with Project Schedule
Systems Manual	28 days prior to the commencement of CPE commissioning activities, in accordance with Project Schedule
Pre-Functional Tests Procedures	28 days after engagement of Commissioning Specialist
Functional Performance Test Procedures	28 days after engagement of Commissioning Specialist

APPENDIX 4-D – UTILITY SUBMITTALS

Schematic Design (SD) Utility Submittals		Due Date
50% utility plans showing: <ol style="list-style-type: none"> all existing Utilities and underground structures within the Project Site based on both the information provided by Owner and on Developer's field investigation; off-site Utilities in the vicinity required for this Project, and all points of connection; and proposed points of connection to existing Utilities including the proposed method of service and routing for electrical power, chilled water, steam, domestic water, fire water, utility water, sanitary sewer, storm drain, natural gas, telephone, and fire alarm systems, as applicable. Exterior pad-mounted transformers and site distribution shall be included. Anticipated chilled water demand information specified in <u>Section 3.5.7.3.3(f)</u> of the Technical Requirements.		As provided in the Project Schedule
100% utility plans showing: <ol style="list-style-type: none"> all existing Utilities and underground structures within the Project Site based on both the information provided by Owner and on Developer's field investigation; off-site Utilities in the vicinity required for this Project, and all points of connection; and proposed points of connection to existing Utilities including the proposed method of service and routing for electrical power, chilled water, steam, domestic water, fire water, utility water, sanitary sewer, storm drain, natural gas, telephone, and fire alarm systems, as applicable. Exterior pad-mounted transformers and site distribution shall be included. 		As provided in the Project Schedule
Design Development (DD) Utility Submittals		Due Date
50% utility plans, updated to show all Utility lines, ductbanks, tanks and equipment that are to be abandoned, removed, or rerouted.		As provided in the Project Schedule
100% utility plans, updated to show all Utility lines, ductbanks, tanks and equipment that are to be abandoned, removed, or rerouted.		As provided in the Project Schedule
Construction Document (CD) Utility Submittals		Due Date
50% utility plans, updated to show all Utility lines, ductbanks, tanks and equipment that are to be abandoned, removed, or rerouted.		As provided in the Project Schedule
100% utility plans, updated to show all Utility lines, ductbanks, tanks and equipment that are to be abandoned, removed, or rerouted.		As provided in the Project Schedule

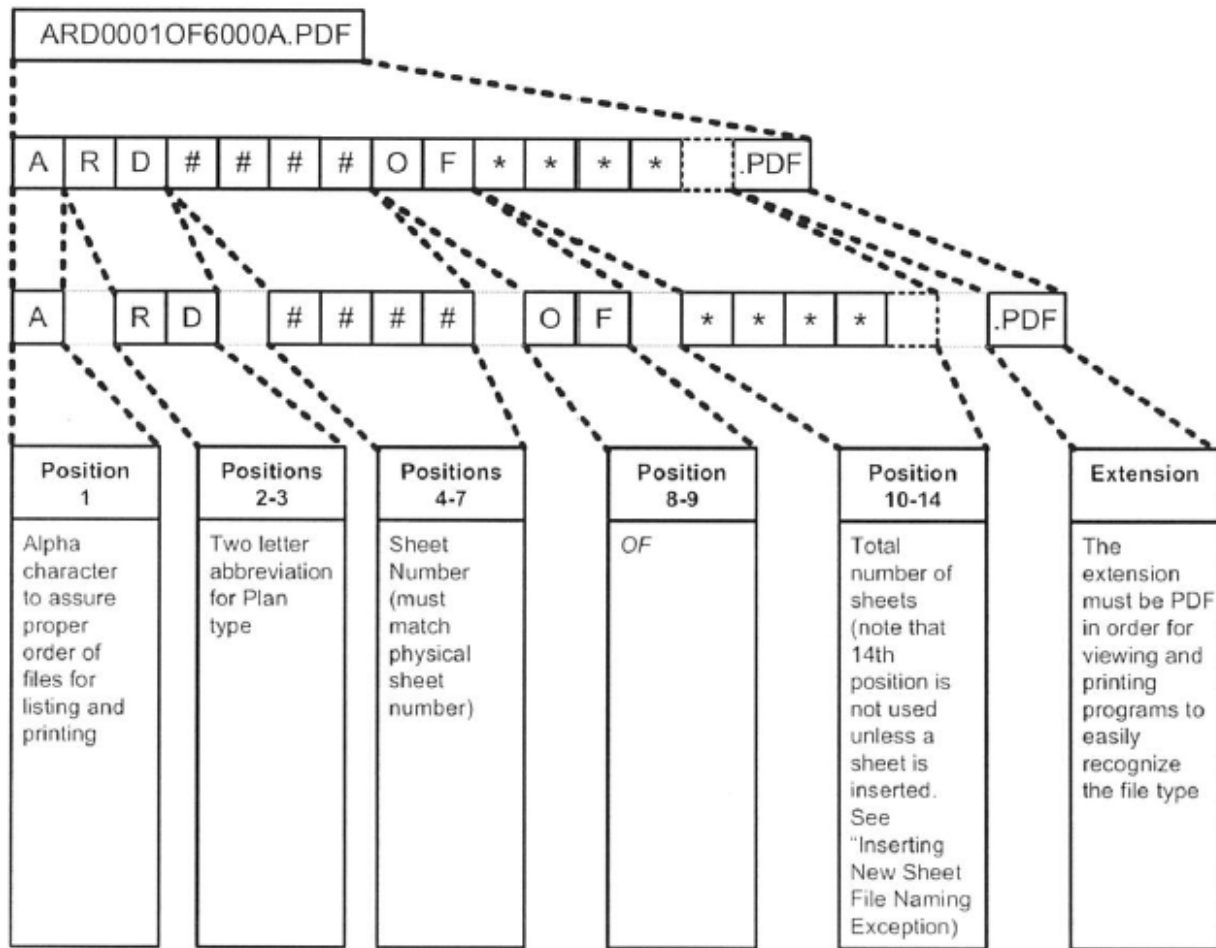
APPENDIX 5 – FILE NAMING CONVENTION

Introduction

The purpose of this document is to describe and illustrate the file naming convention for scanned or electronically generated files and plan sheets. If any files or plans are being scanned within the development team, they must follow this naming format (or follow a naming format developed by the Developer in collaboration with the Owner) in order to provide a uniform method of exchanging the electronic files.

The document is divided into four sections. The first part describes the standard format for naming non-structure plan sheet files. The second part describes the exceptions for multiple sets of cross sections or existing structure plans, which can happen with combination projects. And the third part describes the standard format for naming other electronic files (i.e. reports, calculations, analysis, etc.)

Part 1 – File Naming Format for Plan Sheet Files



Plans file name breakdown

Position 1

This is an alpha character (A to R) that is assigned to each plan type in a project to allow for the proper order in listing and printing. The lettering always begins with “A”. “S” is reserved for Structures, “X” is reserved for Cross Sections, and “Z” is reserved for any existing structure plans that will be included.

Positions 2 – 3

This is a two-letter abbreviation that allows for the easy visual recognition of what the plan type is. The following Table 1 (Cross-Reference Matrix) can be used to determine the proper alpha character and abbreviation to use for the different plan types.

Table 1 - Cross-Reference Matrix

Document Type	Alpha	Abbrev.
Right of Way Plan		RW
Roadway Plan		RD
Utility Relocation Plan		UR
Landscaping Plan		LP
Roadway Lighting Plan		RL
Wetland Mitigation Plan		WM
Environmental Mitigation Plan		EM
Contamination and Remediation Plan		CR
Soil Boring Plan		SB
Signage and Pavement Marking Plan		SM
Soil Profile Plan		SP
Structure	S	ST
Road Cross Section	X	CS
Existing Structure Plan	Z	ES
Other Plan		OP

Positions 4 – 7

– This is a four-place position that contains the numeric sheet number (right justified with preceding zeros: 0001, 0002...0010, 0012, etc.).

Positions 8 – 9

This is simply the descriptive “OF” for 0001OF99, 0002OF99, etc.

Positions 10 – 14

Positions 10 to 13 denote the total number of sheets (with no preceding zeros: 1, 2, 3...10, 11, 12...100, 101, 102, etc.). The fifth place (14) is used for identifying inserted sheets with an alpha character (50A, 75B, 100C, etc.).

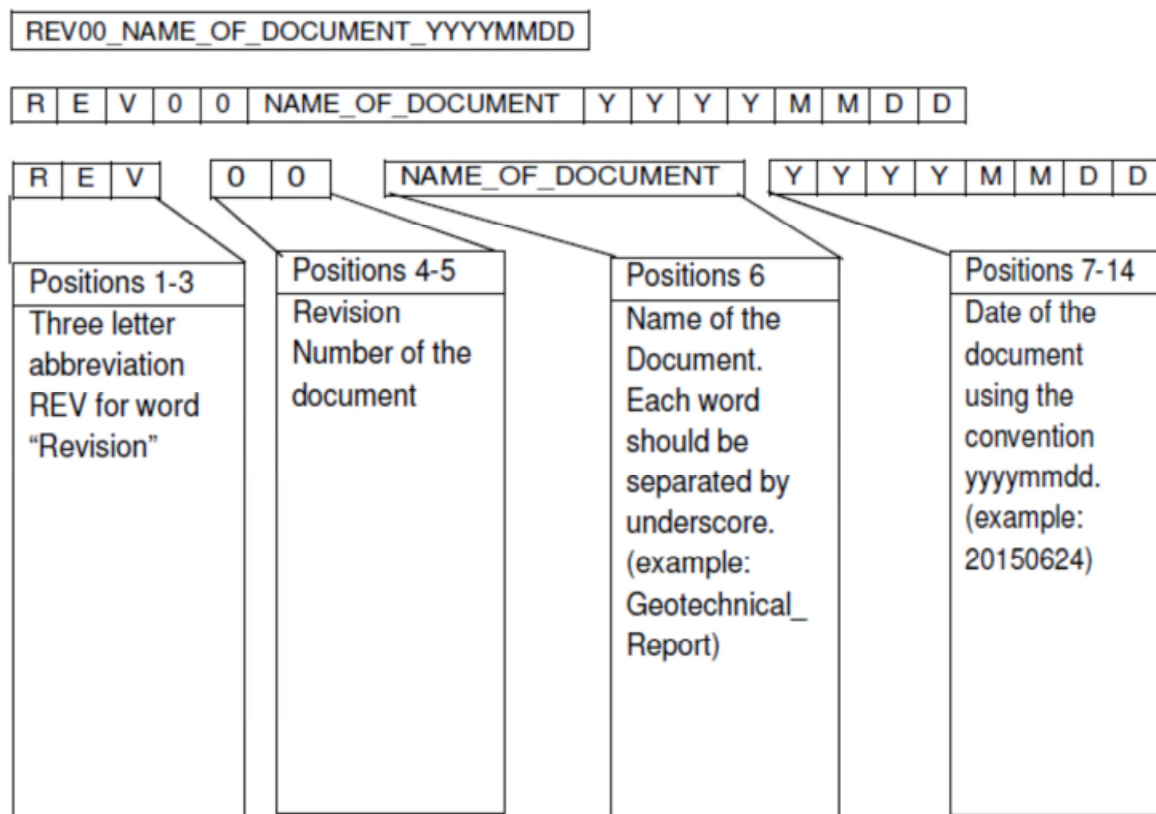
Extension

The extension of every file must be “.pdf” in order for viewers and other applications to recognize the file type.

Part 2 – Exceptions for File Naming Format for Plan Sheet Files

There are cases where new sheets must be inserted into a set of plans. The proper way to do this is to renumber the actual plan sheets and then rescan the set. If renumbering is not possible, then a sheet can be inserted by adding an alpha character to the file name (see sections titled Positions 10 – 14 or Positions 14 –18). For example, if a Roadway plan set had 20 sheets (ARD0001OF20.pdf, ARD0002OF20.pdf, etc.) and a new sheet was inserted between sheets 1 and 2 it would be labeled as sheet 1A (ARD0001OF20A). Note that the letter in the file name comes after the total number of sheets and that the total number of sheets is not changed even though one additional sheet has been added.

Part 3 - File Naming Format for Other Electronic Files



Positions 1 – 3

REV – This is a three-letter abbreviation for the word "Revision."

Positions 4 – 5

This is simply the number of the revision of that document.

Position 6

Position 6 is simply the name of that document in which each word is separated by underscore.

Position 7-14

Positions 7 to 14 denote the date of that document using the convention yyyyymmdd.

Notes:

1. The extension of every file must be “.pdf” in order for viewers and other applications to recognize the file type.
2. Please note that there are underscores before and after position 6 to separate the revision number and date from the document name.
3. Example: REV02_Geotechnical_Report_20150624

APPENDIX 6 – AREA DATA SHEETS

(See attached.)

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-09
Area Type:	Apartment: Staff/Faculty in Residence
Minimum Assignable Area (ASF):	850
Function:	Residence for staff/faculty and family (2 bedroom)
Min Ceiling Height:	9'-0"; 7'-6" at kitchen and bathroom areas
Daylighting / Views:	D2
Visual Privacy:	PR2
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	F2
Ceiling:	See Additional Requirements
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S3
Interior Doors:	ID01
Hardware:	H10
SYSTEMS	
Acoustics:	AC6
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R4
Thermostatic control:	HV-T4
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Manual flush toilet, lavatory, bathtub, kitchen sink, washer hook-up
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per bed in bedrooms, 4 duplex per 100 ASF in all other areas
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L4
Lighting control	LC7

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per bed, 1 data port per room in all other areas
Special system:	
Wireless Requirements:	TW3
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Kitchen: counters Bathroom: Toilet paper holder, towel rod, shower curtain rod Bedroom: Closet w/hanging rod
ADDITIONAL REQUIREMENTS	
Ceilings: C1 or C7	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-11
Area Type:	Athletics: Shared Plaza
Function:	Shared plaza between athletic fields & aquatic center
CHARACTERISTICS	
Paving:	SPV3
Traffic Load:	TL3
Lighting:	SL4
Power:	SP3
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, unless otherwise constrained by Section 3.8.9.7.1
Wireless:	TW1
Plumbing:	SPL3
Signage:	SS5
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-24
Area Type:	ATM Room
Minimum Assignable Area (ASF):	60
Function:	Space for ATM machine
Min Ceiling Height:	8'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H2
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	SC1
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Additional Requirements
Specialty outlets:	See Additional Requirements
Power density:	PW2
Power conditioning:	
Standby power:	See Additional Requirements
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
The space must be designed and constructed to accommodate a Diebold Opteva 562 through the wall walk up ATM. ATM to be provided by financial institution	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-07
Area Type:	Ballroom
Minimum Assignable Area (ASF):	7000
Function:	Conference and meeting rooms - ballroom
Min Ceiling Height:	20'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C6
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S2
Interior Doors:	ID04
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC1
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 400 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC1

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) Category 6A Data Connections in recessed floor box, at 1 per 200 ASF. Data ports on perimeter walls at max 12' on center adjacent to power receptacle.
Special system:	Assistive listening system, sound system
Wireless Requirements:	TW4
CATV/SMATV Connections:	
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Must include storage closet / space large enough to store all related FF&E (storage space included in total ASF for Ballroom) Flooring: Carpet tile throughout. Lights must be dimmable.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-07
Area Type:	BDF Room
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP4
HVAC	
Temperature range:	TR4
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Additional Requirements
Specialty outlets:	See Additional Requirements
Power density:	
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements. Wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: 3/4" Plywood all walls over drywall partition; W1 (for finish) See Technical Requirements Sections 3.8.10.5.3 and 3.8.10.5.4 (Specific BDF Room Requirements and Specific IDF Room Requirements)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-01
Area Type:	Bedroom: Double
Minimum Assignable Area (ASF):	190
Function:	Dormitory - single bedroom for 2 students
Min Ceiling Height:	9'-0"; Ceiling height can be soffit at 8' at entry to rooms; soffit not to exceed 20% of total ceiling
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	F2
Ceiling:	See Additional Requirements
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S3
Interior Doors:	ID01
Hardware:	H9
SYSTEMS	
Acoustics:	AC6
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R4
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per bed in sleeping rooms
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L4

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC7
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per bed
Special system:	
Wireless Requirements:	TW3
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Shelves, hanging rod & closet shelf
ADDITIONAL REQUIREMENTS	
Ceilings: C1 or C7	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-02
Area Type:	Bedroom: Single
Minimum Assignable Area (ASF):	150
Function:	Dormitory - single bedroom
Min Ceiling Height:	9'-0"; Ceiling height can be soffit at 8' at entry to rooms; soffit not to exceed 20% of total ceiling
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	F2
Ceiling:	See Additional Requirements
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S3
Interior Doors:	ID01
Hardware:	H9
SYSTEMS	
Acoustics:	AC6
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R4
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per bed in sleeping rooms
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L4

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC7
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per bed
Special system:	
Wireless Requirements:	TW3
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Shelves, hanging rod & closet shelf
ADDITIONAL REQUIREMENTS	
Ceilings: C1 or C7.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-32
Area Type:	Bedroom: Triple
Minimum Assignable Area (ASF):	245
Function:	Dormitory - single bedroom for three students
Min Ceiling Height:	9'-0"; Ceiling height can be soffit at 8' at entry to rooms; soffit not to exceed 20% of total ceiling
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	F2
Ceiling:	See Additional Requirements
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S3
Interior Doors:	ID01
Hardware:	H9
SYSTEMS	
Acoustics:	AC6
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R4
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per bed in sleeping rooms
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L4

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC7
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per bed
Special system:	
Wireless Requirements:	TW3
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Shelves, hanging rod & closet shelf
ADDITIONAL REQUIREMENTS	
Ceilings: C1 or C7.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-01
Area Type:	Bicycle Path: Primary
Function:	Bicycle and light vehicular traffic
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL3
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL4
Signage:	SS5
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-31
Area Type:	Bicycle Path: Secondary
Function:	Bicycle and light vehicular traffic
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL3
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL4
Signage:	SS5
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-11
Area Type:	Breakroom / Kitchenette
Minimum Assignable Area (ASF):	120 to 250
Function:	Food prep / eating space for employees
Min Ceiling Height:	8'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Double kitchen sink
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 2' on center at counter; dedicated circuits for appliances
Specialty outlets:	
Power density:	PW3
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 12' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in base cabinets, countertop and wall cabinets, 6' min; kitchen sink, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-05
Area Type:	Campus Store
Minimum Assignable Area (ASF):	4000
Function:	Retail space
Min Ceiling Height:	12'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	M
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID10
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, flush floor quad at 1 per 200 ASF
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, six (6) flush floor data outlets for cashier positions, locations to be determined by user.
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	Two (2) CATV connections within Store at opposing corners for future programming needs.
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Small wall or floor safe. Four (4) free-standing register stations with retail counters, designed for standing POS operator.
ADDITIONAL REQUIREMENTS	
Security cameras must be able to see customers' face at counter, cash register drawer(s), safe, all cash transactions	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-63
Area Type:	Cashier Room
Minimum Assignable Area (ASF):	500
Function:	Cashier - includes 4 teller windows
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	See Additional Requirements
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	SC2
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	4 duplex per transaction window: 2 duplex per wall on other three walls
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC5

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	4 data ports per transaction window: 2 data port per wall on other three walls
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Transaction Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, plus coverage of transaction operations, including, at a minimum, observation of cash drawers, safes, counting tables, etc., sufficient to see hands and customer faces during any transaction.
Shielding:	
EQUIPMENT	
Built-in features:	Safe (2): American Security Amvault 45x24x20, 2 hour fire rating, TL 30 Nighttime dropbox on exterior wall, accessible 24 hours/day Four (4) transaction counters; cabinetry designed for standing POS operator.
ADDITIONAL REQUIREMENTS	
<p>Interior Glazing: Room shall have four teller windows with cash pass through and security glazing, and lockable security shutters</p> <p>Interior doors: Each door from a public or general area must have an automatic door closer, and be outfitted with a peephole or other visual monitoring device. Dual door system ('man trap') Interior doors shall not open unless exterior doors are closed.</p> <p>Electromagnetic hold-open devices on doors, connected to security alarm</p> <p>Cashier office and any other student-facing function must be adjacent to, or co-located with the Student First center.</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-33
Area Type:	Central Dining
Minimum Assignable Area (ASF):	27985
Function:	Dining Services space allocation
Min Ceiling Height:	
Daylighting / Views:	
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	
Ceiling:	
Walls:	
Partition point load capacity:	
Window shading (exterior):	
Interior Doors:	ID10
Hardware:	
SYSTEMS	
Acoustics:	
Vibration Criteria:	
Additional Security Features:	
Fire protection:	
HVAC	
Temperature range:	
Air changes/ventilation:	
Recirculation:	
Thermostatic control:	
Positive/negative pressure:	
Plumbing:	
Fixture Type:	See Additional Requirements
Piped services:	See Additional Requirements
Special drains:	See Additional Requirements
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Additional Requirements
Specialty outlets:	See Additional Requirements
Power density:	
Power conditioning:	
Standby power:	See Additional Requirements
UPS:	No
Energy Use Category	
Lighting level	
Lighting control	

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Transaction Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, plus coverage of transaction operations, including, at a minimum, observation of cash drawers, safes, counting tables, etc., sufficient to see hands and customer faces during any transaction.
Shielding:	
EQUIPMENT	
Built-in features:	Five (5) free-standing register stations with built-in cabinetry, designed for seated POS operator. Two (2) free-standing register stations with built-in cabinetry, designed for standing POS operator. See Additional Requirements
ADDITIONAL REQUIREMENTS	
Standby Power: PE1 (for freezer) See Technical Requirements Section 3.7.15.3 (Central Dining Area)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-29
Area Type:	Chemical Stockroom: Gas Storage
Minimum Assignable Area (ASF):	420
Function:	Storage and distribution of laboratory gases in compressed gas cylinders
Min Ceiling Height:	10'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	H-2/H-3/H-4 2-hour fire rated room enclosure
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C3
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR3
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, potable water to EWSS
Special drains:	Floor drain - secondary containment of spillage and fire sprinkler water required
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	H-Occupancy explosion proof switches, fixtures and outlets
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No

Area Datasheets

UC Merced 2020 Area Datasheet

Energy Use Category	EU3
Lighting level	L6
Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Storage for gas cylinder hand truck. Gas cylinder storage racks for full height storage cylinders, minimum of 200 compressed gas cylinders, up to 150 liter each.
ADDITIONAL REQUIREMENTS	
Fire Protection: High Hazard Coverage	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-27
Area Type:	Chemical Stockroom: Inorganic Chemical Storage
Minimum Assignable Area (ASF):	330
Function:	Storage and distribution of inorganic chemicals
Min Ceiling Height:	10'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	H-2/H-3/H-4 2-hour fire rated room enclosure
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C3
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR3
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, potable water to EWSS
Special drains:	Floor drain - secondary containment of spillage and fire sprinkler water required
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	H-Occupancy explosion proof switches, fixtures and outlets
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L6
Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	One 4-foot wide adaptable laboratory workstation 20 4-foot wide full-height lockable chemical storage cabinets 20 4-foot wide full-height lockable flammable chemical storage cabinets with secondary containment.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-30
Area Type:	Chemical Stockroom: Office / Workroom
Minimum Assignable Area (ASF):	200
Function:	Office/workstation/dispensing area for chemical stockrooms
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C2
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID03
Hardware:	H5
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 2 recessed floor quad
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-26
Area Type:	Chemical Stockroom: Organic Chemical Storage
Minimum Assignable Area (ASF):	330
Function:	Storage and distribution of organic chemicals
Min Ceiling Height:	10'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	H-2/H-3/H-4
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C3
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR3
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, potable water to EWSS
Special drains:	Floor drain - secondary containment of spillage and fire sprinkler water required
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	H-Occupancy explosion proof switches, fixtures and outlets
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L6
Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	One 4-foot wide adaptable laboratory workstation 20 4-foot wide full-height lockable chemical storage cabinets 20 4-foot wide full-height lockable flammable chemical storage cabinets with secondary containment.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-28
Area Type:	Chemical Stockroom: Solvent Storage
Minimum Assignable Area (ASF):	220
Function:	Storage and distribution of volatile and flammable solvent chemicals
Min Ceiling Height:	10'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	H-2/H-3/H-4 2-hour fire rated room enclosure
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C3
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR3
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, potable water to EWSS
Special drains:	Floor drain - secondary containment of spillage and fire sprinkler water required
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	H-Occupancy explosion proof switches, fixtures and outlets
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L6
Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	One 4-foot wide adaptable laboratory workstation 20 4-foot wide full-height lockable flammable chemical storage cabinets with secondary containment.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-02
Area Type:	Classroom 1: 299 Seat, Stepped Seating
Minimum Assignable Area (ASF):	6250
Function:	299 seat lecture hall; stepped seating
Min Ceiling Height:	9' at the lowest points and 16' at the stage area
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S2
Interior Doors:	ID04
Hardware:	H1
SYSTEMS	
Acoustics:	AC1
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lab sink
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, power outlets on built-in student tables at 1 duplex per two seats
Specialty outlets:	
Power density:	PW3
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC1

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Teaching wall with built in cabinets and AV storage, and rolling white boards. Concealable stainless steel sink w/epoxy counter surround, paper towel holder, soap dispenser American Seating Company curved tables with attached Steelcase Cachet Swing Away chairs. AV rack mount in lockable built-in cupboard; 2 camera mounts in ceiling, run back to AV cabinet. 4' high wall mounted whiteboards on front and side walls at 30% of wall length
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-04
Area Type:	Classroom 2: 90 Seat (TEAL), Flat Floor
Minimum Assignable Area (ASF):	2250
Function:	Large classroom
Min Ceiling Height:	14'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S2
Interior Doors:	ID04
Hardware:	H1
SYSTEMS	
Acoustics:	AC2-1
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 200 ASF
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, Recessed floor/ceiling data port at 1 per 200 ASF.
Special system:	Assistive listening system
Wireless Requirements:	TW4
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-03
Area Type:	Classroom 3: 90 Seat, Flat Floor
Minimum Assignable Area (ASF):	1800
Function:	classroom
Min Ceiling Height:	14' 0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S2
Interior Doors:	ID04
Hardware:	H1
SYSTEMS	
Acoustics:	AC2-1
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Minimum 2 quad. 110v 20A on each side wall
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-01
Area Type:	Classroom 4: 30 seat
Minimum Assignable Area (ASF):	660
Function:	Classroom
Min Ceiling Height:	10'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1A
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 2 recessed floor quad
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-05
Area Type:	Classroom 5: 24 seat Seminar Room
Minimum Assignable Area (ASF):	500
Function:	Living learning seminar rooms
Min Ceiling Height:	10'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1A
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Minimum 2 quad. 110v 20A on each side wall
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-53
Area Type:	Classroom 8: Child
Minimum Assignable Area (ASF):	1100
Function:	Classroom
Min Ceiling Height:	11'-4"
Daylighting / Views:	D1
Visual Privacy:	Not permitted
Interior glazing	
Occupancy (Code):	I-4
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	ID08
Hardware:	H1
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lavatories - 1 adult height (hot and cold) and 1 child height (cold only) with auto faucet. Both with drinking faucets
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	Tamper resistant outlets.
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center. two (2) data ports at instructor desk.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Child sink with counter, adult sink with counter and wall storage cabinets, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Any exterior doors from Classroom 8: Child to outdoor play area shall also be ID8	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-01
Area Type:	Classroom Laboratory 1: Wet
Minimum Assignable Area (ASF):	990
Function:	Room adaptable for biology, molecular biology, biochemistry
Min Ceiling Height:	10'-0"
Daylighting / Views:	D5
Visual Privacy:	
Interior glazing	RL5
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sinks along wet wall, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, industrial & hot & cold water, PW, potable cold water
Special drains:	Acid waste drain at lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center; two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	<p>2 Each 6' Chemical Fume hoods with decommissioning option and shut-off valve, visible to instructor.</p> <p>45' Built in base cabinets with epoxy counter top and lockable cupboard/drawer units at perimeter</p> <p>30' Wall mounted cabinet over base cabinets</p> <p>1 vented, lockable full height chemical storage cabinet</p> <p>3 Each Epoxy lab sinks in perimeter cabinetry, paper towel holder, soap dispenser</p> <p>Sink pedestal at instructor workstation, with epoxy sink and top and base cabinets</p> <p>Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length not occupied by cabinetry</p>
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-02
Area Type:	Classroom Laboratory 2: Chemistry
Minimum Assignable Area (ASF):	1320
Function:	Room adaptable for Biology, Molecular Biology, Biochemistry
Min Ceiling Height:	10'-0"
Daylighting / Views:	D5
Visual Privacy:	
Interior glazing	RL5
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sinks along wet wall, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, industrial hot & cold water, PW, potable cold water
Special drains:	Acid waste drain at lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center; two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	<p>4 Each 6' Chemical Fume hoods with decommissioning option and shut-off valve, visible to instructor.</p> <p>45' Built in base cabinets with epoxy counter top and lockable cupboard/drawer units at perimeter</p> <p>30' Wall mounted cabinet over base cabinets</p> <p>1 vented, lockable full height chemical storage cabinet</p> <p>6 Each Epoxy lab sinks in perimeter cabinetry, paper towel holder, soap dispenser</p> <p>Sink pedestal at instructor workstation, with epoxy sink and top and base cabinets</p> <p>Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length not occupied by cabinetry</p>
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-03
Area Type:	Classroom Laboratory 3: Organic Chemistry
Minimum Assignable Area (ASF):	1650
Function:	Room adaptable for Biology, Molecular Biology, Biochemistry
Min Ceiling Height:	10'-0"
Daylighting / Views:	D5
Visual Privacy:	
Interior glazing	RL5
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C2
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3, lab sinks along wet wall
Piped services:	LV, LA, industrial hot & cold water, PW, potable cold water
Special drains:	Acid waste at lab sinks and chemical fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center; two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	<p>10 Each 6' Chemical Fume hoods with decommissioning option and shut-off valve, visible to instructor.</p> <p>45' Built in base cabinets with epoxy counter top and lockable cupboard/drawer units at perimeter</p> <p>30' Wall mounted cabinet over base cabinets</p> <p>1 vented, lockable full height chemical storage cabinet</p> <p>6 Each Epoxy lab sinks in perimeter cabinetry, paper towel holder, soap dispenser</p> <p>Sink pedestal at instructor workstation, with epoxy sink and top and base cabinets</p> <p>Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length not occupied by cabinetry</p>
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-04
Area Type:	Classroom Laboratory 4: Dry
Minimum Assignable Area (ASF):	990
Function:	Room adaptable for physics, engineering, earth sciences.
Min Ceiling Height:	10'-0"
Daylighting / Views:	D5
Visual Privacy:	
Interior glazing	RL5
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sinks
Piped services:	LV, LA, industrial hot & cold water, PW, potable cold water
Special drains:	Acid waste at lab sinks and chemical fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center; two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	<p>45' Built in base cabinets with epoxy counter top and lockable cupboard/drawer units at perimeter</p> <p>30' Wall mounted cabinet over base cabinets</p> <p>2 Each Epoxy lab sinks in perimeter cabinetry, paper towel holder, soap dispenser</p> <p>Sink pedestal at instructor workstation, with epoxy sink and top and base cabinets</p> <p>Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length not occupied by cabinetry</p>
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-05
Area Type:	Classroom Laboratory 5: Computational
Minimum Assignable Area (ASF):	330
Function:	Workstation layout adaptable for reconfiguration of room
Min Ceiling Height:	10'-0"
Daylighting / Views:	D5
Visual Privacy:	
Interior glazing	RL5
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 12' on center, two (2) recessed floor boxes with four ports each, two (2) data ports at instructor desk.
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, two (2) recessed floor boxes with four ports each, two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW4
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Teaching wall with built in cabinets and AV storage. Rolling white boards; 4' high wall mounted whiteboards on front and side walls at 30% of wall length
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-06
Area Type:	Classroom Laboratory 6: Studio
Minimum Assignable Area (ASF):	1320
Function:	Room adaptable for Arts, Dance, Music, etc.
Min Ceiling Height:	16'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C7
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Stub out plumbing to provide for flexibility in space
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 12' on center.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-07
Area Type:	Classroom Laboratory 7: Maker Space
Minimum Assignable Area (ASF):	1320
Function:	Room suitable for fabrication teaching
Min Ceiling Height:	15'-6"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C7
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	1 lab sink on bench at perimeter of room; lab sinks along wet wall, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, Industrial and potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	Power track - multi circuit
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L6
Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 12' on center; two (2) data ports at instructor desk.
Special system:	Assistive listening system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Provide moveable shop workbenches with wood or composite tops, snorkel fume hood, and dust extraction system. 4' high wall mounted whiteboards on front and side walls at 30% of wall length Paper towel holder, soap dispenser at sinks
ADDITIONAL REQUIREMENTS	
Interior Doors: ID6 and a glazed garage (roll-up) door	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CL-09
Area Type:	Classroom Laboratory 8: Service
Minimum Assignable Area (ASF):	250
Function:	Laboratory prep area
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C3
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Sinks, access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, industrial hot & cold water, PW, potable cold water
Special drains:	Acid waste at lab sinks and chemical fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 12' on center.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in casework at perimeter of room with lockable cupboard/drawer base cabinets and epoxy counter tops. Provide two knee space workstations with adjustable height countertops. 2 Each 4' chemical fume hoods with cup sinks 2 Each epoxy lab sinks, counter mounted, paper towel holder, soap dispenser One (1) 24" single door autoclave, one glassware washer and dryer, sized to accommodate lab area served
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-28
Area Type:	Closet: Custodial
Minimum Assignable Area (ASF):	100
Function:	Storage
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Mop sink
Piped services:	
Special drains:	Floor drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	1 data port per room
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: W1 and FRP for up to 6'.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-06
Area Type:	Colloquy Space 1: Large
Minimum Assignable Area (ASF):	1000
Function:	Collaboration and Interaction
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H4
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Kitchen sink, valved outlets for refrigerator and coffee maker.
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 100 ASF, GFCI at kitchen counter areas
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data ports on perimeter walls at max 6' on center; recessed floor box with two (2) data every 200 ASF
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in base cabinets, countertop and wall cabinets, 6' min; kitchen sink, paper towel holder, soap dispenser 4' high wall mounted whiteboards or similar writing surface on 30% of exposed wall areas
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-07
Area Type:	Colloquy Space 2: Medium
Minimum Assignable Area (ASF):	500
Function:	Collaboration and Interaction
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	See Additional Requirements
Hardware:	H4
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	Potable hot & cold water for food service hook up
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 100 ASF, power for food service hook up
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data ports on perimeter walls at max 6' on center; 3 recessed floor boxes with two (2) data outlets
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' high wall mounted whiteboards or similar writing surface on 30% of exposed wall areas
ADDITIONAL REQUIREMENTS	
Walls: Four walls not necessary; may be 'open' space adjoining other areas. Interior Doors: If space has interior doors, door shall be ID2	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	C-08
Area Type:	Colloquy Space 3: Small
Minimum Assignable Area (ASF):	200
Function:	Collaboration and Interaction
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	See Additional Requirements
Hardware:	H4
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 100 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data ports on perimeter walls at max 6' on center; recessed floor box with two (2) data outlets
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' high wall mounted whiteboards or similar writing surface on 30% of exposed wall areas
ADDITIONAL REQUIREMENTS	
Walls: Four walls not necessary; may be 'open' space adjoining other areas. Interior Doors: If space has interior doors, door shall be ID2	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-07
Area Type:	Conference Room 01: 8 seats
Minimum Assignable Area (ASF):	180 to 250 (min 10' width)
Function:	Conference room
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	PR2
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 1 recessed floor quad
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC3

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on one wall and one recessed floor box with two (2) data outlets.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' high wall mounted whiteboards or similar writing surface on 30% of exposed wall areas
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-05
Area Type:	Conference Room 02: 10-12 seats
Minimum Assignable Area (ASF):	350 (min 10' width)
Function:	Conference room
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	PR2
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 2 recessed floor quad
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC3

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on one wall and one recessed floor box with two (2) data outlets.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' high wall mounted whiteboards or similar writing surface on 30% of exposed wall areas
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-06
Area Type:	Conference Room 03: 24+ seats
Minimum Assignable Area (ASF):	500 to 1,500 (min 10' width)
Function:	Conference room
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	PR2
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1A
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, Three (3) recessed floor quad boxes
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC3

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on one wall and three (3) recessed floor boxes with two (2) data outlets.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' high wall mounted whiteboards or similar writing surface on 30% of exposed wall areas
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-03
Area Type:	Corporation/Service Yard
Function:	
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL6
Power:	SP5
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exit
Wireless:	TW1
Plumbing:	SPL5
Signage:	SS5
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-12
Area Type:	Corridor: Primary Circulation
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex every 50 ft of wall.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: Wall finish shall be washable latex paint finish or other architectural quality finishes compatible with adjacent spaces	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-14
Area Type:	Corridor: Residential
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	8'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex every 50 ft of wall.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: Wall finish shall be washable latex paint finish or other architectural quality finishes compatible with adjacent spaces	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-13
Area Type:	Corridor: Secondary Circulation
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex every 50 ft of wall.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: Wall finish shall be washable latex paint finish or other architectural quality finishes compatible with adjacent spaces	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-02
Area Type:	Corridor: Utility
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex every 50 ft of wall.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	
Lighting level	L7
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: Wall finish shall be washable latex paint finish or other architectural quality finishes compatible with adjacent spaces	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-07
Area Type:	Courts: Basketball
Function:	Sports and recreation areas for outdoor basketball courts
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL7
Power:	SP7
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL7
Signage:	SS5
Public Address:	PA3
Landscaping:	LS2
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-06
Area Type:	Courts: Tennis
Function:	Sports and recreation areas for tennis courts
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL7
Power:	SP7
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL7
Signage:	SS5
Public Address:	PA3
Landscaping:	LS2
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-33
Area Type:	Early Childhood Outdoor Play Area
Function:	Outdoor play area for Early Childhood
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL4
Power:	SP3
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS5
Public Address:	PA1
Landscaping:	LS8
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-27
Area Type:	ECEC Support Space
Minimum Assignable Area (ASF):	130
Function:	Support space / work room for ECEC, with kitchen
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	Not permitted
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID09
Hardware:	H4
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Kitchen sink
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Kitchen counter & cabinets, 2 built-in desks (or counters at seating height to be used as desks), paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-09
Area Type:	Electrical Closet
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	See Additional Requirements
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	1 data port per room; wall phone next to door; BMS outlet, two (2) data.
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
HVAC Temp Range: See technical requirements	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-01
Area Type:	Elevator Lobby
Minimum Assignable Area (ASF):	
Function:	Elevator lobby
Min Ceiling Height:	9'-0" (8'-0" in Housing Areas)
Daylighting / Views:	
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Interior Doors: Shall be self-closing, smoke doors (per code)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-11
Area Type:	Entrance Lobby
Minimum Assignable Area (ASF):	
Function:	Main entrance lobbies
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F3
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center. One outlet per CCTV camera position
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-19
Area Type:	Exam Room / Treatment Room
Minimum Assignable Area (ASF):	100
Function:	Exam room
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H4
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lavatory w/sensor control faucet
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, outlets for computer charting station and vital station height.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center
Special system:	Nurse call button system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' base cabinet; 4' wall mounted cabinet; handwash sink; wall mounted medical computer desk, curtains on windows, Privacy curtains, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Room needs access to exit independent of lobby	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-22
Area Type:	Exam Room, Telemedicine (Patient exam and video presentation)
Minimum Assignable Area (ASF):	100
Function:	Patient exam and video presentation
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1A
Interior Doors:	ID02
Hardware:	H4
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lavatory w/sensor control faucet
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center; power for mounted TV, outlets for computer charting station & vital station height.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center.
Special system:	Nurse call button system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' base cabinet; 4' wall mounted cabinet; handwash sink; wall mounted medical computer desk, curtains on windows, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Room needs access to exit independent of lobby.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-02
Area Type:	Fields: Competition
Function:	NCAA Division II Competition sports surface with associated recreation and spectator/audience facilities.
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL5
Power:	SP6
Video Surveillance:	
Wireless:	TW2
Plumbing:	SPL6
Signage:	SS5
Public Address:	PA1
Landscaping:	LS2
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.14.1 (Fields: Competition)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-21
Area Type:	Fields: Recreation
Function:	Recreation fields for intermural sports and general recreation.
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL7
Power:	SP6
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL6
Signage:	SS5
Public Address:	PA3
Landscaping:	LS2
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.14.2 (Fields: Recreation)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-08
Area Type:	Gallery
Minimum Assignable Area (ASF):	2000
Function:	Display
Min Ceiling Height:	13'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	M
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	See Additional Requirements
Walls:	See Additional Requirements
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID10
Hardware:	See Additional Requirements
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	See Additional Requirements
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Provide quad flush floor outlets at 8' on center. Provide quad ceiling/grid outlets at 8' on center, each on independent circuit
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Provide quad flush floor outlets at 8' on center. Provide quad ceiling/grid outlets at 8' on center, each on independent circuit
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.19.4 (Student Life: Student Activity: Retail: Gallery)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-05
Area Type:	Gateway
Function:	Entrance to university, to include entryway signs, landscaping, special lighting, and alternative pavement treatments.
CHARACTERISTICS	
Paving:	SPV3
Traffic Load:	TL1
Lighting:	SL1
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS1
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-33
Area Type:	Group Therapy
Minimum Assignable Area (ASF):	300
Function:	Group therapy rooms
Min Ceiling Height:	10'-0"
Daylighting / Views:	D3
Visual Privacy:	PR1
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC3

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center
Special system:	Silent duress alarm
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
If windows included, must provide for privacy from outside (via shades or other privacy screening). Lighting must be dimmable.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-10
Area Type:	IDF Room
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	See Additional Requirements
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Additional Requirements
Specialty outlets:	See Additional Requirements
Power density:	
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements. Wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
<p>Walls: 3/4" Plywood all walls over drywall partition; W1 (for finish)</p> <p>See Technical Requirements Sections 3.8.10.5.3 and 3.8.10.5.4 (Specific BDF Room Requirements and Specific IDF Room Requirements)</p> <p>Temperature range for IDF rooms in Buildings comprising predominantly Housing Areas shall be 65 degrees to 90 degrees. For all other IDF rooms the Temperature range shall be TR4</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-13
Area Type:	Information Desk
Minimum Assignable Area (ASF):	290
Function:	Information desk for students (student life student activity)
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F3
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Power to electrified workstations, one recessed floor quad.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at desk.
Special system:	Silent duress alarm
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-18
Area Type:	Intake: Confidential
Minimum Assignable Area (ASF):	60 to 120
Function:	Intake for health services
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports per workstation.
Special system:	Silent duress alarm
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Transaction Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, plus coverage of transaction operations, including, at a minimum, observation of cash drawers, safes, counting tables, etc., sufficient to see hands and customer faces during any transaction.
Shielding:	
EQUIPMENT	
Built-in features:	<p>Built in transaction counter with HIPAA compliant screening between intake workstations – provide transaction counter including 3-foot wide standard stations and 4-foot wide accessible stations. Sliding, lockable windows for each intake workstation. One (1) POS location, which shall be back counter, with cabinetry, designed for standing POS operator.</p> <p>Wellness: 4 intake stations; 2 on each side as follows: one standard station and one accessible station.</p> <p>Counseling and Psychological Services: 1 accessible station for post graduate side; 2 stations for undergraduate side including 1 standard and 1 accessible station.</p>
ADDITIONAL REQUIREMENTS	
<p>Windows must be offset between individual waiting rooms, for privacy.</p> <p>Staff must be able to open intake door by button.</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-09
Area Type:	Kitchen: Serving/Prep - Large
Minimum Assignable Area (ASF):	500
Function:	Serving / prep kitchen
Min Ceiling Height:	10'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C6
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID04
Hardware:	H5
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	See Additional requirements
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Additional Requirements
Specialty outlets:	See Additional Requirements
Power density:	PW6
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	See Additional Requirements
ADDITIONAL REQUIREMENTS	
Campus EH&S Food Service Certification Walls: W4; Note, FRP Panels may be used Design by Proposer's food service consultant See Technical Requirements Section 3.7.15.4 (Conference Center: Kitchen: Serving/Prep Area - Large Area)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-11
Area Type:	Kitchen: Serving/Prep - Small
Minimum Assignable Area (ASF):	195
Function:	Serving / prep kitchen
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C6
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID02
Hardware:	H5
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	See Additional requirements
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Additional Requirements
Specialty outlets:	See Additional Requirements
Power density:	PW6
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	See Additional Requirements
ADDITIONAL REQUIREMENTS	
Campus EH&S Food Service Certification Walls: W4; Note, FRP Panels may be used Design by Proposer's food service consultant See Technical Requirements Section 3.7.15.5 (Academic: Office: Academic Leadership Office: Kitchen: Serving/Prep – Small Area)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CO-47
Area Type:	Laboratory: Medical
Minimum Assignable Area (ASF):	350
Function:	Laboratory in Wellness Center
Min Ceiling Height:	9'-6"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C4
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Clean sink; Dirty sink w/foot or knee faucet controls; Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, Industrial hot & cold water, Potable hot & cold water, PW
Special drains:	1 Drain directly to sewer for dirty sink, floor drain for ice machine
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	208V for 2 freezer/fridges
Power density:	PW4
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	EU3

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L1
Lighting control	LC4
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port at counters at max 2' on center, on walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Stainless steel urine hopper to restrooms. Counter with designated Clean Sink and Dirty Sink (directly to sewer), paper towel holder, soap dispenser. Upper/lower cabinets and drawers, set up for bar scanning medical inventory items, one 4'-wide fume hood.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-16
Area Type:	Lactation Room
Minimum Assignable Area (ASF):	60 to 100
Function:	Private space for lactation
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H2
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L7
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Room should either be located near a sink with running water, or include a sink in it.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-38
Area Type:	Landscaping: Connecting
Function:	
CHARACTERISTICS	
Paving:	SPV5
Traffic Load:	TL4
Lighting:	SL7
Power:	SP1
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS5
Public Address:	PA3
Landscaping:	LS2
ADDITIONAL REQUIREMENTS	
Provide data outlets sufficient to support wireless coverage in all areas. Data coverage may be provided by adjacent facilities.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-36
Area Type:	Landscaping: Core
Function:	
CHARACTERISTICS	
Paving:	SPV5
Traffic Load:	TL4
Lighting:	SL7
Power:	SP1
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS5
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	
Provide data outlets sufficient to support wireless coverage in all areas. Data coverage may be provided by adjacent facilities.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-37
Area Type:	Landscaping: Perimeter
Function:	
CHARACTERISTICS	
Paving:	SPV5
Traffic Load:	TL4
Lighting:	SL7
Power:	SP1
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS5
Public Address:	PA3
Landscaping:	LS3
ADDITIONAL REQUIREMENTS	
Provide data outlets sufficient to support wireless coverage in all areas. Data coverage may be provided by adjacent facilities.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-09
Area Type:	Laundry: Athletics
Minimum Assignable Area (ASF):	240
Function:	Laundry facility
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C7
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Utility sink
Piped services:	Potable hot & cold water, natural gas for driers
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	As needed for laundry equipment
Specialty outlets:	208V for each washer & dryer
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in base cabinet and work counter, 30" deep, 8' min length, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-18
Area Type:	Laundry: Housing
Minimum Assignable Area (ASF):	600
Function:	Laundry facility
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C7
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID05
Hardware:	H1
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Utility sink
Piped services:	Potable hot & cold water, natural gas for driers
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	As needed for laundry equipment
Specialty outlets:	208V for each washer & dryer
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port connected to each machine assuming PoS with payment card; 2 data ports for CBORD LR 3000 laundry controller
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Work table (either wall or floor mounted)); CBORD LR 3000 laundry controller, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Include easy access to clean lint traps and exhaust pipes within design.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-19
Area Type:	Lobby
Minimum Assignable Area (ASF):	85 to 750
Function:	Lobby
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F3
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID10
Hardware:	H5
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	One (1) CATV connection in room.
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-41
Area Type:	Lobby / Queuing
Minimum Assignable Area (ASF):	750 to 1000
Function:	Lobby area for enrollment center
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 400 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, Recessed floor quad at 1 per 200 ASF.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	Four (4) CATV connections in room.
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Reception desk w/lobby visibility
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-26
Area Type:	Locker: Gender Inclusive
Minimum Assignable Area (ASF):	80
Function:	Restroom & locker facilities, gender inclusive - single occupancy room with lockers for 3-4 people.
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	C3
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H2
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory, shower
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	1 duplex outlet per sink
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L7

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC8
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counter; shelves; large wall mirror; paper towel holder, soap dispenser Four (4) EA Summit Lockers "Z" Phenolic Lockers (72" H x 18" W x 18" D) Standard hasp lock Sitting bench for changing.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-02
Area Type:	Lockers 01: Athletics
Minimum Assignable Area (ASF):	950
Function:	Locker room – presumed occupancy 30 for aquatics; 60 for outdoor athletics. Visiting teams assumed to use other gender locker rooms on game day.
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	See Additional Requirements
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H7
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory, shower, drinking fountain, water bottle filling station
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	1 duplex outlet per sink
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L7
Lighting control	LC8
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	1 data port per room; wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counter; shelves; large wall mirror, partitions (full height for shower), paper towel holder, soap dispenser Twenty four (24) EA Hollman Basic Locker 24" W x 72" H
ADDITIONAL REQUIREMENTS	
Ceiling must be moisture resistant	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-01
Area Type:	Lockers 02: Public
Minimum Assignable Area (ASF):	400
Function:	Locker rooms for public
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	See Additional Requirements
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H5
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory, shower, drinking fountain, water bottle filling station
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	1 duplex outlet per sink
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per room; wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counter; shelves; large wall mirror, partitions, paper towel holder, soap dispenser 120 each Lockers (36" H x 18" W x 18" D) w/standard hasp lock
ADDITIONAL REQUIREMENTS	
Entry shall have visual screening to screen interior of locker room from exterior view with door open. Primary entrance shall have lockable doors, which shall be able to be fastened in an open position during operational hours. Ceiling must be moisture resistant.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-03
Area Type:	Lockers 03: Coach
Minimum Assignable Area (ASF):	250
Function:	Locker room for coaches (also to be used by referees)
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	C3
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory, shower, drinking fountain, water bottle filling station
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	1 duplex outlet per sink
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per room; wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counter; shelves; large wall mirror, paper towel holder, soap dispenser Six (6) EA Summit Lockers "Z" Phenolic Lockers (72" H x 18" W x 18" D) Standard hasp lock Partitions between toilets and showers.
ADDITIONAL REQUIREMENTS	
Ceiling must be moisture resistant	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-14
Area Type:	Lounge, Social & Entertainment
Minimum Assignable Area (ASF):	1000
Function:	Gathering spaces for student social & entertainment functions
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H5
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 400 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports per wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	Two (2) CATV connection in room.
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-04
Area Type:	Lounge, Social (Students)
Minimum Assignable Area (ASF):	500 to 725
Function:	Gathering space for social functions or studying
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	See Additional Requirements
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Kitchen sink
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 100 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports per wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	One (1) CATV connection in room.
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in base cabinets, countertop and wall cabinets, 6' min, microwave, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Hardware: Rooms located on residence-only floors can be push/pull hardware; all other rooms require card key access.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-44
Area Type:	Lounge: Digital Interface
Minimum Assignable Area (ASF):	200
Function:	Digital lounge / self service
Min Ceiling Height:	10'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL1
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F3
Ceiling:	C6
Walls:	W5
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Quad on perimeter walls at max 6' on center, 4 recessed floor quad
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, 4 recessed floor quads
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-08
Area Type:	Machine Room
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR4
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data outlet per room
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-17
Area Type:	Mail/Receiving
Minimum Assignable Area (ASF):	2000
Function:	Central mail / receiving space for all residences.
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W2
Partition point load capacity:	PL2
Window shading (exterior):	S1
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per wall; wall phone next to exit door
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Built in base cabinet and work counter, 30" deep, 16' min Built-in mailboxes (apartment style) Rear-loading, horizontal, compliant with USPS standard 4C, Unit Boxes for Incoming Mail: 5-1/8 inches high by 6-7/16 inches wide. Mailbox count will be sufficient to provide one mailbox per resident.
ADDITIONAL REQUIREMENTS	
Space shall include 1,200 ASF secured staff work area to allow for sorting and holding of mail, and 800 ASF of public mailbox access. Work area shall have direct access to rear of mailboxes, and shall include a service counter with secured pass-through window for package pick-up	
Must be adjacent to a Housing office.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-06
Area Type:	Mechanical Room
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	As needed for equipment and diagnostics. BMS outlet two (2) data. Wall phone next to exit door
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-20
Area Type:	Multipurpose
Minimum Assignable Area (ASF):	3,000
Function:	Multipurpose room
Min Ceiling Height:	12'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1A
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 200 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, Recessed floor quads at 1 per 400 ASF
Special system:	Assistive listening system for Boardroom use only
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	12' full height wall storage cabinets, millwork quality 1
ADDITIONAL REQUIREMENTS	
Must include storage closet / space large enough to store all related FF&E. ASF of storage space included in total room ASF.	
Interior Doors: When used for Academic: Office: Academic Leadership Office: Board Room, ID4. Otherwise, should be ID2.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-22
Area Type:	Multi-Purpose: Housing
Minimum Assignable Area (ASF):	750
Function:	Multipurpose room
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	A
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 200 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, Recessed floor quads at 1 per 400 ASF
Special system:	Assistive listening system for Boardroom use only
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	12' full height wall storage cabinets, millwork quality 1
ADDITIONAL REQUIREMENTS	
Must include storage closet / space large enough to store all related FF&E. ASF of storage space included in total room ASF.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-28
Area Type:	Nursing Area
Minimum Assignable Area (ASF):	250
Function:	Nursing
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lavatory
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L2
Lighting control	LC5

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 2' on center, on walls at max 6' on center
Special system:	Nurse call system controller and indicator
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Nurse station units, min 8 each, 6' long, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-51
Area Type:	Observation Room
Minimum Assignable Area (ASF):	50
Function:	Classroom observation for clinical studies
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	See Additional Requirements
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H5
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	1 Duplex on perimeter walls
Specialty outlets:	
Power density:	PW3
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L3
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port on perimeter walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
One way window for observation with acoustical separation from room under observation, wall to wall counter at 30" for observation, outlet and data port at counter	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-02
Area Type:	Office 01: Administrator
Minimum Assignable Area (ASF):	100
Function:	Office
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR2
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	A minimum of 2 duplex outlets per office with each outlet on a different wall of the office.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	For rooms used as Huddle Room, must have a conference phone on a land line, and full height wall mounted whiteboards or similar writing surface on 3 walls.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-01
Area Type:	Office 02: Administrator
Minimum Assignable Area (ASF):	120
Function:	Office for administrative
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR2
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	A minimum of 2 duplex outlets per office with each outlet on a different wall of the office.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	For rooms used as Huddle Room, must have a conference phone on a land line, and full height wall mounted whiteboards or similar writing surface on 3 walls.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-32
Area Type:	Office 02: Counseling (CAPS)
Minimum Assignable Area (ASF):	120
Function:	Counseling offices
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	A minimum of 2 duplex outlets per office with each outlet on a different wall of the office.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Access to exit independent of lobby / waiting room, for safety and privacy. Lights must be dimmable	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	OF-04
Area Type:	Office 03: Research Staff
Minimum Assignable Area (ASF):	130
Function:	Private office for lecturers, etc.
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	A minimum of 2 duplex outlets per office with each outlet on a different wall of the office.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	One (1) 8'x4' wall mounted white board.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	OF-01
Area Type:	Office 04: Faculty
Minimum Assignable Area (ASF):	130
Function:	Private office with window for faculty, lecturers, etc.
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	A minimum of 2 duplex outlets per office with each outlet on a different wall of the office.
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	One (1) 8'x4' wall mounted white board.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	CO-45
Area Type:	Office 05: Chancellor
Minimum Assignable Area (ASF):	275
Function:	Office for chancellor, bathroom to adjoin.
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per wall on three of four walls
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
The Chancellor's Office must be directly connected to a single-user restroom (Restroom: Gender Inclusive w/shower).	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	OF-02
Area Type:	Office 06: Provost
Minimum Assignable Area (ASF):	250
Function:	Private office with window for faculty, lecturers, etc.
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per wall on three of four walls
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	OF-03
Area Type:	Office 07: Vice Chancellor
Minimum Assignable Area (ASF):	200
Function:	Private office with window for faculty, lecturers, etc.
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	PR2
Interior glazing	RL3
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per wall on three of four walls
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on one wall.
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-11
Area Type:	Parking: Offstreet - Central
Function:	Parking for personal and university vehicles.
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL2
Lighting:	SL2
Power:	SP2
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space unless otherwise constrained by section 3.8.9.7.1.
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS2
Public Address:	PA3
Landscaping:	LS4
ADDITIONAL REQUIREMENTS	
Video surveillance for lots with 200+ parking spots, unless otherwise constrained by Section 3.8.9.7.1.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-12
Area Type:	Parking: Offstreet - Peripheral
Function:	Parking for personal and university vehicles. Temporary lots are defined as parking areas expressly designated for future building development.
CHARACTERISTICS	
Paving:	SPV2
Traffic Load:	TL2
Lighting:	SL2
Power:	SP2
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space unless otherwise constrained by section 3.8.9.7.1.
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS2
Public Address:	PA3
Landscaping:	LS5
ADDITIONAL REQUIREMENTS	
Video surveillance for lots with 200+ parking spots, unless otherwise constrained by Section 3.8.9.7.1.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-10
Area Type:	Parking: Offstreet - South of Bellevue
Function:	Parking for personal and university vehicles.
CHARACTERISTICS	
Paving:	SPV6
Traffic Load:	TL2
Lighting:	SL2
Power:	SP2
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS2
Public Address:	PA3
Landscaping:	LS5
ADDITIONAL REQUIREMENTS	
Video surveillance for lots with 200+ parking spots.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-13
Area Type:	Parking: Onstreet
Function:	Short term parking for personal and university vehicles; ADA compliant parking close to buildings; loading and drop off.
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL2
Power:	SP2
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL2
Signage:	SS3
Public Address:	PA3
Landscaping:	LS4
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-23
Area Type:	Phlebotomy
Minimum Assignable Area (ASF):	100
Function:	Phlebotomy
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID03
Hardware:	H4
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lavatory
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per wall on three of four walls
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on three of four walls.
Special system:	Nurse call button system
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built-in 4' base cabinet; 4' wall mounted cabinet; handwash sink; wall mounted medical computer desk, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-15
Area Type:	Plaza: Formal
Function:	Public gathering and circulation spaces.
CHARACTERISTICS	
Paving:	SPV3
Traffic Load:	TL3
Lighting:	SL4
Power:	SP3
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Wireless:	TW1
Plumbing:	SPL3
Signage:	SS5
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-16
Area Type:	Plaza: Informal
Function:	Public gathering and circulation spaces.
CHARACTERISTICS	
Paving:	SPV3
Traffic Load:	TL3
Lighting:	SL4
Power:	SP3
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL3
Signage:	SS5
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-17
Area Type:	Pool: Competition
Function:	Outdoor competition and recreation pool with pool surround and bleachers. A diving pool is not included.
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL5
Power:	SP8
Video Surveillance:	
Wireless:	TW2
Plumbing:	SPL8
Signage:	SS5
Public Address:	
Landscaping:	LS2
ADDITIONAL REQUIREMENTS	
12 data ports (for scoring table) - infrastructure only, per Section 3.7.14.5.6 Public Address: Developer shall provide infrastructure for Starter PA system per section 3.7.14.5.6 See Technical Requirements Section Section 3.7.14.5 (Pool: Competition)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-05
Area Type:	Pool Pump/Filtration Room
Minimum Assignable Area (ASF):	400
Function:	Room for pump and filtration equipment
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W3
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	See Technical Requirements
Piped services:	As required by equipment
Special drains:	As required by equipment
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per room. Wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Interior Door: If interior door used, shall be ID3 If stand-alone building, pool pump/filtration room shall not be conditioned.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-17
Area Type:	Printer/Copy Room
Minimum Assignable Area (ASF):	176 to 300
Function:	Work space
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H5
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	One 30A outlet per 75 ASF
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data ports at counters at max 2' on center, on walls at max 6' on center; wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in base cabinet and work counter, 30" deep, 8' min, millwork quality 2
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-24
Area Type:	Procedure/Casting
Minimum Assignable Area (ASF):	180
Function:	Procedures, casting
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR2
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID07
Hardware:	H4
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lavatory sink w/foot or knee faucet controls; Casting sink with plaster trap
Piped services:	LV, LA, Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per wall on three of four walls
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC4
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per wall on three of four walls
Special system:	Nurse call button system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' base cabinet; 4' wall mounted cabinet; wall mounted medical computer desk, privacy curtains, ceiling mounted procedure light, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Access to exit independent of lobby 1 shared Viewer for Xray films in hallway near nurse station	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-27
Area Type:	Radiology
Minimum Assignable Area (ASF):	200
Function:	Radiology
Min Ceiling Height:	10'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID07
Hardware:	H5
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 duplex per wall on three of four walls
Specialty outlets:	200A 3 phase 24 circuit panelboard for future equipment. Panelboard shall have have MCB.
Power density:	PW4
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC4
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data port per wall on three of four walls
Special system:	Nurse call button system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	Determine shielding requirements with recommendations of consulting physicist based on University-provided equipment list
EQUIPMENT	
Built-in features:	Wall mounted medical computer desk; universal framing support for radiology equipment (radiology equipment to be provided and installed by owner), illuminated sign when "Radiology in Use"
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-21
Area Type:	Recreation/Gaming
Minimum Assignable Area (ASF):	625 to 2,000
Function:	Recreation and gaming room
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID04
Hardware:	H5
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, Three (3) recessed floor quad boxes
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L1
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center.
Special system:	Sound system
Wireless Requirements:	TW2
CATV/SMATV Connections:	Two (2) CATV connections in room.
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-01
Area Type:	Research Laboratory 01: Wet
Minimum Assignable Area (ASF):	660
Function:	wet laboratory - chemistry
Min Ceiling Height:	9'-6"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sinks along wet wall, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, industrial and potable hot & cold water, purified water
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center, on walls at max 6' on center; wall phone next to exit door(s)
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, Chemical Fume Hood & alcove, overhead service carriers, Flammable & acid Cabinets under fume hood, shelving for innocuous salts, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
<p>Fume hood density – 6 linear feet fume hoods per each 660 ASF lab space minimum. Fume hoods may be located in adjacent Laboratory Support areas.</p> <p>Provide 2 lab sinks for each per each 660 ASF lab space minimum</p> <p>Electromagnetic hold-open devices on doors, connected to security alarm (EH&S only)</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-05
Area Type:	Research Laboratory 01A: Synthetic Chemistry
Minimum Assignable Area (ASF):	660
Function:	wet laboratory - synthetic chemistry
Min Ceiling Height:	9'-6"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C1
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sinks along wet wall, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, industrial and potable hot & cold water, PW
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center, on walls at max 6' on center; wall phone next to exit door(s)
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, fume hood (see Additional Requirements for more details), overhead service carriers, Flammable & acid Cabinets under fume hoods, shelving for innocuous salts, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
<p>Floors: F5; Troweled epoxy flooring required</p> <p>Fume hood density – 30 linear feet fume hoods per each 660 ASF lab space minimum in one of the following configurations:</p> <ul style="list-style-type: none"> - 3 – 10 foot fume hoods - 2 – 10 foot fume hoods and 2 – 6 foot fume hoods <p>Provide space for Vented Robotic Containment Enclosure – with a footprint of 4 ft by 8 ft</p> <p>Provide 4 lab sinks for each per each 660 ASF lab space minimum</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-10
Area Type:	Research Laboratory 02: Wet Support
Minimum Assignable Area (ASF):	330 to 1,000
Function:	Laboratory support
Min Ceiling Height:	9'-6"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C4
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sinks along wet wall, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, Industrial and Potable hot & cold water, PW
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	See Technical Requirements
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 2' on center, on walls at max 6' on center; wall phone next to exit door(s)
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, overhead service carriers, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
Provide 1 lab sinks for each per each 330 ASF lab space minimum	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-02
Area Type:	Research Laboratory 03: Dry
Minimum Assignable Area (ASF):	440
Function:	Dry laboratory
Min Ceiling Height:	9'-6"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F9
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LA, Potable hot & cold water
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center, on walls at max 6' on center; wall phone next to exit door(s)
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, overhead service carrier, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
Provide 1 lab sinks for each per each 660 ASF lab space minimum	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-04
Area Type:	Research Laboratory 03A: Dry - Dark
Minimum Assignable Area (ASF):	440
Function:	Dry laboratory
Min Ceiling Height:	9'-6"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F9
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V1
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LA, Potable hot & cold water
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center, on walls at max 6' on center; wall phone next to exit door(s)
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, overhead service carriers, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
Provide 1 lab sinks for each per each 660 ASF lab space minimum	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-07
Area Type:	Research Laboratory 03B: Dry - Flex
Minimum Assignable Area (ASF):	440
Function:	Dry laboratory
Min Ceiling Height:	9'-6"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F9
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lab sink, Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LA, Potable hot & cold water
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L1

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC2
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 4' on center, on walls at max 6' on center; wall phone next to exit door(s)
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, overhead service carriers, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
Provide 1 lab sinks for each per each 660 ASF lab space minimum	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-11
Area Type:	Research Laboratory 04: Dry Support
Minimum Assignable Area (ASF):	220
Function:	Laboratory support
Min Ceiling Height:	9'-6"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F9
Ceiling:	C4
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LA, Industrial and Potable hot & cold water, PW
Special drains:	Acid waste drain from lab sinks and fume hood cup sinks
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	See Technical Requirements
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adaptable lab bench casework, overhead service carriers, paper towel holder, soap dispenser. See technical requirements section Section 3.7.10.6 (Specific Research Laboratory Requirements)
ADDITIONAL REQUIREMENTS	
Provide 1 lab sinks for each per each 330 ASF lab space minimum	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-03
Area Type:	Research Laboratory 05: Computational, Large
Minimum Assignable Area (ASF):	440
Function:	Computational Laboratory
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR2
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 200 ASF
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	LC4
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center. Recessed floor quat at 1 per 200 ASF
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adjustable height work surfaces, compliant clear area for wheelchairs, movable file cabinet.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-15
Area Type:	Research Laboratory 06: Computational, Small
Minimum Assignable Area (ASF):	220
Function:	Computational Laboratory
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR2
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC3
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, recessed floor quad at 1 per 200 ASF
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	LC4
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center. Recessed floor quat at 1 per 200 ASF
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Adjustable height work surfaces, compliant clear area for wheelchairs, movable file cabinet.
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-08
Area Type:	Research Laboratory 07: Studio
Minimum Assignable Area (ASF):	440
Function:	studio research space
Min Ceiling Height:	16'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1A
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Stub out plumbing to provide for flexibility in space
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at counters at max 2' on center, on walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-17
Area Type:	Research Laboratory 08: Studio Support
Minimum Assignable Area (ASF):	220
Function:	Laboratory support
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	S1
Interior Doors:	ID06
Hardware:	H1
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-24
Area Type:	Research Laboratory 10: Glasswash and autoclave room
Minimum Assignable Area (ASF):	165
Function:	For autoclave
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C8
Walls:	W3
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID05
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	2 large counter-mounted lab utility sinks
Piped services:	Potable hot & cold water
Special drains:	Floor drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	One 20' length of wiremold or similar system with duplex outlets at 2' on center
Specialty outlets:	208V for built-in equipment, 208V outlets on wiremold or similar system with outlets at 2' on center.
Power density:	PW5
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per 100 ASF
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	One 36" single-sided autoclave, one glassware washer and dryer, sized to accommodate lab area served; canopy hood over autoclaves, washer, and dryer, paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-25
Area Type:	Research Laboratory 12: Academic Machine Shop
Minimum Assignable Area (ASF):	1500
Function:	Room adaptable for Physics, Engineering, Earth Sciences, etc.
Min Ceiling Height:	10'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C7
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R3
Thermostatic control:	HV-T3
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	1 lab sink on bench at perimeter of room; lab sinks along wet wall; Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	LV, LA, Industrial and potable hot & cold water
Special drains:	Floor drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting level	L6
Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center; wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Overhead rack and crane system (5 ton capacity). Provide moveable shop workbenches with wood or composite tops, snorkel fume hood, and dust extraction system. Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Interior Doors: ID6 and a glazed garage (roll-up) door	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-06
Area Type:	Research Laboratory 13: Shared Instrument Suite
Minimum Assignable Area (ASF):	3824
Function:	Core Laboratory - shared instrument suite
Min Ceiling Height:	9'-6"
Daylighting / Views:	D4
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C2
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID05
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V1
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	See Additional Requirements
Plumbing:	
Fixture Type:	See Technical Requirements
Piped services:	See Technical Requirements
Special drains:	See Technical Requirements
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Technical Requirements
Specialty outlets:	See Technical Requirements
Power density:	PW4
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center; wall phone next to exit door(s).
Special system:	See Technical Requirements
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Two utility sinks per room 20 LF lab base cabinet, countertop, & wall cabinet per instrument room (total of 10 LF) 1 six-foot chemical fume hood per Instrument room
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.10.11 (Specific Shared Instrument Suite Requirements)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-22
Area Type:	Research Laboratory 14: Vivarium Suite
Minimum Assignable Area (ASF):	6176
Function:	Vivarium suite
Min Ceiling Height:	9'-6" located in area or building with 18'-0" floor to floor height
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C5
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	See Additional Requirements
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC1
Vibration Criteria:	V1
Additional Security Features:	SC1
Fire protection:	FP1
HVAC	
Temperature range:	TR3
Air changes/ventilation:	VR3
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	See Additional Requirements
Plumbing:	
Fixture Type:	See Technical Requirements
Piped services:	See Technical Requirements
Special drains:	See Technical Requirements
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Technical Requirements
Specialty outlets:	See Technical Requirements
Power density:	PW4
Power conditioning:	See Technical Requirements
Standby power:	PE2
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center; wall phone next to exit door(s).
Special system:	See Technical Requirements
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Animal holding rooms (per each) Fold-down note taking desk(s) in anteroom Procedure Room Built-in base & wall cabinets Anesthetic gas scavenger system Piped gas to racks & manifolds ABSL3 Suite Decontamination gas system, including supply, outlets and exhaust Animal Holding Rooms (per each) Fold-down note taking desk(s) in anteroom ABSL 3 Suite Procedure Rooms (per each): Built-in base & wall cabinets Anesthetic gas scavenger system Piped gas to racks & manifolds Core Rooms (per each) 12 ft base & wall cabinets w/one sink
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.10.8 (Specific Vivarium Requirements)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-23
Area Type:	Research Laboratory 15: Greenhouse
Minimum Assignable Area (ASF):	2500
Function:	Greenhouse
Min Ceiling Height:	9'-6"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W7
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR3
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	See Additional Requirements
Positive/negative pressure:	See Additional Requirements
Plumbing:	
Fixture Type:	See Technical Requirements
Piped services:	See Technical Requirements
Special drains:	See Technical Requirements
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Technical Requirements
Specialty outlets:	See Technical Requirements
Power density:	PW4
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See 'Specific Greenhouse Requirements' in Technical Specifications
Special system:	See Technical Requirements
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	<p>Storage racks and cabinets for supplies (clean,) tools & associated equipment</p> <p>Workbenches and plant growth benches, including:</p> <p>Soil mixing tables</p> <p>Workbench w/shelving below:</p> <p>20 LF in service area</p> <p>8 LF (stainless steel) in growth chamber/germination chamber rooms</p> <p>Plant growth benches (wood, aluminum, or stainless steel (w/open shelving below)</p> <p>10 LF stainless steel base cabinet w/epoxy top with sink in sample preparation/packaging area</p> <p>One chemical fume hood</p> <p>Cylinder racks & manifolds</p>
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.10.10 (Specific Greenhouse Requirements)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-21
Area Type:	Research Laboratory 16: BSL3 Suite
Minimum Assignable Area (ASF):	2500
Function:	Biosafety Level 3 laboratory
Min Ceiling Height:	9'-6"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C4
Walls:	W3
Partition point load capacity:	PL3
Window shading (exterior):	See Additional Requirements
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC5
Vibration Criteria:	V2
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR3
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	See Additional Requirements
Plumbing:	
Fixture Type:	See Technical Requirements
Piped services:	See Technical Requirements
Special drains:	See Technical Requirements
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Technical Requirements
Specialty outlets:	See Technical Requirements
Power density:	PW4
Power conditioning:	
Standby power:	PE2
UPS:	No
Energy Use Category	EU3
Lighting level	L1
Lighting control	LC2

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center; wall phone next to exit door(s).
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Relocatable lab casework w/base cabinets, epoxy counter tops, sinks & overhead service carriers (lab/procedure rooms) Decontamination gas system, including supply, outlets and exhaust
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.7.10.9 (Specific BSL3 Suite Requirements)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-13
Area Type:	Research Server Center
Minimum Assignable Area (ASF):	1025
Function:	Containerized server assembly and associated sitework
Min Ceiling Height:	8'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W7
Partition point load capacity:	
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	See Additional Requirements
Additional Security Features:	
Fire protection:	FP4
HVAC	
Temperature range:	See Additional Requirements
Air changes/ventilation:	See Additional Requirements
Recirculation:	See Additional Requirements
Thermostatic control:	See Additional Requirements
Positive/negative pressure:	See Additional Requirements
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	See Technical Requirements
Specialty outlets:	See Technical Requirements
Power density:	See Additional Requirements
Power conditioning:	See Technical Requirements
Standby power:	See Additional Requirements
UPS:	Yes
Energy Use Category	See Additional Requirements
Lighting level	L7
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	See Additional Requirements
Special system:	See Additional Requirements
Wireless Requirements:	See Additional Requirements
CATV/SMATV Connections:	
Video Surveillance:	See Additional Requirements
Shielding:	
EQUIPMENT	
Built-in features:	See Additional Requirements
ADDITIONAL REQUIREMENTS	
See Technical Requirements Section 3.8.10.5.5 (Research: Core Labs: Research Server Center Requirements)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-35
Area Type:	Research Server Center Yard
Function:	Secure area for research server
CHARACTERISTICS	
Paving:	SPV2
Traffic Load:	TL1
Lighting:	SL6
Power:	SP5
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Wireless:	TW1
Plumbing:	SPL5
Signage:	SS4
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	
<p>Structural concrete paved pad, sufficient to support containers without specialized foundations. Pad shall extend at least 10' beyond containers on all sides, and be sloped to drain. Pad shall be set at least 6" above surrounding grade level and above 500 year flood level.</p> <p>Security fencing to enclosure perimeter. Fencing shall be steel palisade fencing, minimum 7' high, with outward sloping anti-climb spikes.</p> <p>Vehicular gate, rolling, power operated, min 12' fully open width</p> <p>Personnel gates, 2, manual, min 3' 6" opening.</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-54
Area Type:	Restroom: Child
Minimum Assignable Area (ASF):	120
Function:	Bathroom
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F4
Ceiling:	C1
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID09
Hardware:	H2
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	4 child toilets, 3 child lavatory w/automatic faucets - cold water only, 1 adult lavatory w/hot & cold
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	Tamper resistant outlets
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC8
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counters, mirrors, paper towel dispenser, waste receptacle, soap dispenser, toilet tissue dispenser, partial partitions between toilets. Half cabinets above sink and mirrors.
ADDITIONAL REQUIREMENTS	
<p>Exterior doors to outdoor play area shall also be ID8</p> <p>Restroom must be adjacent and immediately accessible from preschool classrooms and play yard</p> <p>Walls: 4 foot tile wainscotting is acceptable for non-wet walls only</p>	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-03
Area Type:	Restroom: Dormitory
Minimum Assignable Area (ASF):	255
Function:	Bathroom facilities for dormitories
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C3
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID02
Hardware:	H5
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory w/sensor control faucet, showers
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	1 duplex outlet per sink
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counters, mirrors, waste receptacles, toilet tissue dispensers, seat cover dispensers, partitions between toilets, sanitary napkin waste receptacles, paper towel holder, soap dispenser Lockers: Design-Tec Cubbie Storage Unit fabricated from solid phenolic composite material, made by The Young Group, Fabricated Products Division. 5 doors, Height 71-3/4 inches, Width 15-inches, Depth 15-3/8 inches
ADDITIONAL REQUIREMENTS	
Walls: 4 foot tile wainscotting is acceptable for non-wet walls only Floors: F4 or F5	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-20
Area Type:	Restroom: Gender Inclusive
Minimum Assignable Area (ASF):	60
Function:	Restroom
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C1
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	H2
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory w/sensor control faucet
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counter, mirror, waste receptacle, soap dispenser, toilet tissue dispenser, seat cover dispenser, electric hand dryer, sanitary napkin dispenser, sanitary napkin waste receptacle
ADDITIONAL REQUIREMENTS	
Interior Door: Should be ID2 for all uses; ID3 for Athletics or Aquatics use. Walls: 4 foot tile wainscotting is acceptable for non-wet walls only Floors: F4 or F5	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-21
Area Type:	Restroom: Gender Inclusive w/shower
Minimum Assignable Area (ASF):	50 to 150
Function:	Shower & bathroom
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C3
Walls:	W4
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	H2
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory w/sensor control faucet, ADA accessible shower
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counter, mirror, waste receptacle, soap dispenser, toilet tissue dispenser, seat cover dispenser, electric hand dryer, sanitary napkin dispenser, sanitary napkin waste receptacle
ADDITIONAL REQUIREMENTS	
Interior Door: Should be ID2 for all uses; ID3 for Athletics or Aquatics use. Walls: 4 foot tile wainscotting is acceptable for non-wet walls only Floors: F4 or F5	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-13
Area Type:	Restroom: Men
Minimum Assignable Area (ASF):	350 to 400
Function:	Restroom facilities for men
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	H5
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory w/sensor control faucet, urinal
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counters, mirrors, waste receptacles, soap dispensers, toilet tissue dispensers, seat cover dispensers, partitions between toilets, electric hand dryers
ADDITIONAL REQUIREMENTS	
Interior Door: Should be ID2 for all uses; ID3 for Athletics or Aquatics use. Walls: 4 foot tile wainscotting is acceptable for non-wet walls only Floors: F4 or F5	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-14
Area Type:	Restroom: Women
Minimum Assignable Area (ASF):	350 to 400
Function:	Restroom facilities for women
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	H5
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Toilet, lavatory w/sensor control faucet
Piped services:	Potable hot & cold water
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Vanity counters, mirrors, waste receptacles, soap dispensers, toilet tissue dispensers, seat cover dispensers, partitions between toilets, electric hand dryers, sanitary waste receptacles, sanitary napkin dispensers, recessed baby changing station
ADDITIONAL REQUIREMENTS	
Interior Door: Should be ID2 for all uses; ID3 for Athletics or Aquatics use. Walls: 4 foot tile wainscotting is acceptable for non-wet walls only Floors: F4 or F5	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-06
Area Type:	Retail Shell
Minimum Assignable Area (ASF):	2000
Function:	Retail
Min Ceiling Height:	13'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	M
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C7
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID10
Hardware:	See Additional Requirements
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Stub out plumbing to provide for flexibility in space
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	Provide 24 circuit panelboard with spaces for each retail shell
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Extend four (4) strands Multimode, two (2) Data cables to interface point outside retail area from closest BDF/IDF & terminate in lockable enclosure.
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	One (1) CATV connection to interface point outside retail area from closest BDF/IDF & terminate in lockable enclosure.
Video Surveillance:	Transaction Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, plus coverage of transaction operations, including, at a minimum, observation of cash drawers, safes, counting tables, etc., sufficient to see hands and customer faces during any transaction.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Hardware: Commercial grade lockset appropriate to door.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-22
Area Type:	Roadway: Emergency/Service Access
Function:	Vehicular Traffic
CHARACTERISTICS	
Paving:	SPV2
Traffic Load:	TL1
Lighting:	SL7
Power:	SP1
Video Surveillance:	
Wireless:	
Plumbing:	SPL1
Signage:	SS5
Public Address:	PA3
Landscaping:	LS9
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-19
Area Type:	Roadway: Primary
Function:	Vehicular Traffic
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL1
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL1
Signage:	SS1
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-20
Area Type:	Roadway: Secondary
Function:	Vehicular Traffic
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL1
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL1
Signage:	SS1
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-09
Area Type:	Service & Loading Zone
Function:	Zone for vehicular deliveries to buildings or other facilities.
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL6
Power:	SP5
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Wireless:	TW1
Plumbing:	SPL5
Signage:	SS4
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-23
Area Type:	Shop, Maintenance
Minimum Assignable Area (ASF):	2000
Function:	Maintenance shop
Min Ceiling Height:	12'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL3
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Utility sink; Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	Power track - multi circuit
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at workstation location.
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Exterior Doors: 8' roll-up door.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	D-17
Area Type:	Staging
Minimum Assignable Area (ASF):	350
Function:	Loading dock staging area
Min Ceiling Height:	10'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID05
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lavatory
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Exterior Wall Phone/Box next to exit door.
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Standby Power: No preference, except for Academic Research: Support & Maintenance use, which requires PE1.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	D-16
Area Type:	Staging: Research
Minimum Assignable Area (ASF):	350
Function:	Loading dock staging area for research space (includes 25% emergency power)
Min Ceiling Height:	10'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID05
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Lavatory
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU1
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Exterior Wall Phone/Box next to exit door.
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-05
Area Type:	Stairwell: Fire Exit
Minimum Assignable Area (ASF):	
Function:	Code required fire exit Stairwell - only used for emergency
Min Ceiling Height:	N/A
Daylighting / Views:	
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	See Additional Requirements
UPS:	No
Energy Use Category	EU3
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
HVAC Pressure Type: HV-P2. If high rise then pressurized stair and/or vestibule required.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-03
Area Type:	Stairwell: Primary Circulation
Minimum Assignable Area (ASF):	
Function:	Convenience stair between adjacent floors
Min Ceiling Height:	N/A
Daylighting / Views:	D2
Visual Privacy:	
Interior glazing	
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F3
Ceiling:	C6
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	NA-04
Area Type:	Stairwell: Secondary Circulation
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	N/A
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P4
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU2
Lighting level	L7
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-16
Area Type:	Sterile supplies/autoclave/glasswash
Minimum Assignable Area (ASF):	100
Function:	For autoclave, glasswashing, etc. in Wellness center
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W3
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P3
Plumbing:	
Fixture Type:	Lab utility sink
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	One 10' length of wiremold or similar system with duplex outlets at 2' on center
Specialty outlets:	208V for built-in equipment, 208V outlets on wiremold or similar system with outlets at 2' on center.
Power density:	PW5
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC4
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	One (1) data port per wall on two opposing walls
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Paper towel dispenser, soap dispenser, 8' base counter and wall cabinets (millwork quality 1)
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-25
Area Type:	Storage: Bike/Gear
Minimum Assignable Area (ASF):	625
Function:	Covered exterior storage area for longterm storage of bicycles.
Min Ceiling Height:	10'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	S
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	
Air changes/ventilation:	VR1
Recirculation:	
Thermostatic control:	
Positive/negative pressure:	
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L7
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, unless otherwise constrained by Section 3.8.9.7.1
Shielding:	
EQUIPMENT	
Built-in features:	Standing Bicycle Rack: Ultra Space Saver Bike Rack, floor mounted with Powder Coat Black finish as manufactured by Dero Bikes, Inc., 1-800-298-4915 or approved equal.
ADDITIONAL REQUIREMENTS	
Space shall include secure exterior gate.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AR-20
Area Type:	Storage: Chemical
Minimum Assignable Area (ASF):	220 to 355
Function:	Distributed chemical storage for research labs
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	H-2
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C4
Walls:	W3
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V2
Additional Security Features:	SC1
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR2
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Access to eyewash / safety shower (EWSS) as per Technical Requirements Section 3.8.2.10.3
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex at counters at max 2' on center, on walls at max 6' on center
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6

Area Datasheets

UC Merced 2020 Area Datasheet

Lighting control	LC6
Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port at counters at max 2' on center, on walls at max 6' on center
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	Access Coverage: CCTV coverage of all entrances/access points to monitor persons entering or exiting space. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	ten (10) Flammable Storage Cabinets w/lock that can be assigned to individual faculty member (Justrite Sure-Grip EX Slimline Flammable Safety Cabinet, Capacity 22 gallons, 3 shelves 1 s/c door)
ADDITIONAL REQUIREMENTS	
At least one room located on each lab floor and always within 250 feet of the most remote lab	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-15
Area Type:	Storage: Custodial
Minimum Assignable Area (ASF):	120 to 350
Function:	Storage
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL2
Window shading (exterior):	
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-22
Area Type:	Storage: General
Minimum Assignable Area (ASF):	Varies from 100 to 2,500
Function:	Storage and/or filing
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-25
Area Type:	Storage: General Wet
Minimum Assignable Area (ASF):	200
Function:	Class prep for Classroom 1: 299 Seat
Min Ceiling Height:	9'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Utility sink
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-34
Area Type:	Storage: Temp Controlled
Minimum Assignable Area (ASF):	120
Function:	Temperature controlled storage
Min Ceiling Height:	8'-0"
Daylighting / Views:	D4
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	See Additional Requirements
Ceiling:	See Additional Requirements
Walls:	W7
Partition point load capacity:	PL1
Window shading (exterior):	See Additional Requirements
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	See Additional Requirements
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	See Additional Requirements
Air changes/ventilation:	See Additional Requirements
Recirculation:	HV-R2
Thermostatic control:	See Additional Requirements
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	Floor drain with acid waste for condenser water.
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW4
Power conditioning:	
Standby power:	PE1
UPS:	No
Energy Use Category	EU3
Lighting level	L7
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Built in Controlled Temperature Room with capacity to set temperature between 4 degrees and 40 Wire storage racks
ADDITIONAL REQUIREMENTS	
Built in fabricated Controlled Temperature Room with capacity to set temperature between 4 degrees and 40 degrees celsius, and controlled temperature range of +/- 1 degree. Humidity shall have a set point between 30% and 80% RH, with operational control of +/- 5%. Room finishes (floor wall and ceiling) to be factory finish stainless steel. Room door to be factory fabricated stainless steel.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	SH-05
Area Type:	Study Room
Minimum Assignable Area (ASF):	200 to 250
Function:	Study rooms within student housing, community
Min Ceiling Height:	9'-0"
Daylighting / Views:	D1
Visual Privacy:	
Interior glazing	RL2
Occupancy (Code):	R-2
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W2
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	See Additional Requirements
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 1 recessed floor quad per 100 ASF
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Four (4) data ports per room, distributed around room
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Hardware: Rooms located on residence-only floors can be push/pull hardware; all other rooms require card key access.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-06
Area Type:	Tech/Control
Minimum Assignable Area (ASF):	120
Function:	Control room for scoreboard and timing functions.
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C3
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Power to accomodate equipment, PA, music systems.
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	A-10
Area Type:	Ticket Office
Minimum Assignable Area (ASF):	60
Function:	Ticket window / counter for outdoor events
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F6
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	2 quad on each side wall
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports at ticket counters at max 2' on center - two locations each
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	Transaction Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space, plus coverage of transaction operations, including, at a minimum, observation of cash drawers, safes, counting tables, etc., sufficient to see hands and customer faces during any transaction.
Shielding:	
EQUIPMENT	
Built-in features:	Ticket counter with 3 pass through transaction windows. Transaction counters shall be designed for standing POS operator.
ADDITIONAL REQUIREMENTS	
Ticket office may be combined with Tech/Control space.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-23
Area Type:	Transit Hub
Function:	
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL4
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL4
Signage:	SS1
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-24
Area Type:	Transit Shelter
Function:	Shelter provided at each transit stop.
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL4
Lighting:	SL4
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL1
Signage:	SS1
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-35
Area Type:	Trash Chute Room: Housing
Minimum Assignable Area (ASF):	
Function:	Trash chute room
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H5
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Utility sink
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors sloped to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L4
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Trash chute, Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Walls: W3 and W-7 (Fiberglass Reinforced Plastic (FRP) wall paneling full height all walls) Trash chute inlet doors shall have bi-sorter control and automatic bi-sorter for trash and recycling at ground floor trash room.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-32
Area Type:	Trash Chute Room: Non-Housing
Minimum Assignable Area (ASF):	
Function:	Trash chute room
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R3
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	Utility sink
Piped services:	Potable hot & cold water
Special drains:	Floor drain; floors sloped to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L4
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	Trash chute, Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Walls: W3 and W-7 (Fiberglass Reinforced Plastic (FRP) wall paneling full height all walls) Trash chute inlet doors shall have bi-sorter control and automatic bi-sorter for trash and recycling at ground floor trash room.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-08
Area Type:	Trash/Recycling
Minimum Assignable Area (ASF):	300
Function:	Trash & recycling
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	See Additional Requirements
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	ID03
Hardware:	H5
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR2
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T2
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Hose bibb & floor sink
Piped services:	
Special drains:	Floor drains; floors slope to drain
Power	
User Convenience (excludes outlets for AV, security, etc.):	
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L6
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Walls: W3 and W-7 (Fiberglass Reinforced Plastic (FRP) wall paneling full height all walls)	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-25
Area Type:	Trash/Recycling Handling Yards
Function:	Management of trash and recycling stream, including temporary holding and vehicular pick-up.
CHARACTERISTICS	
Paving:	SPV1
Traffic Load:	TL1
Lighting:	SL1
Power:	SP5
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL5
Signage:	SS4
Public Address:	PA3
Landscaping:	LS1
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-21
Area Type:	Triage
Minimum Assignable Area (ASF):	100
Function:	Triage room
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	PR2
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F5
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC2
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R2
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P1
Plumbing:	
Fixture Type:	Lavatory
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, power for computer charting station and vital station height
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU3
Lighting level	L6
Lighting control	LC4

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on 3 out of 4 perimeter walls at max 6' on center
Special system:	Nurse call button system
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	4' base cabinet; 4' wall mounted cabinet; handwash sink; wall mounted medical computer desk, privacy curtains; Paper towel holder, soap dispenser
ADDITIONAL REQUIREMENTS	
Room needs access to exit independent of lobby	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-18
Area Type:	Utility Structure
Minimum Assignable Area (ASF):	
Function:	
Min Ceiling Height:	8'-0"
Daylighting / Views:	
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	S
FINISHES / TREATMENT	
Floor / Base:	F7
Ceiling:	C8
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	
Interior Doors:	See Additional Requirements
Hardware:	H1
SYSTEMS	
Acoustics:	AC8
Vibration Criteria:	G3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	
Air changes/ventilation:	
Recirculation:	
Thermostatic control:	
Positive/negative pressure:	
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	One duplex per wall.
Specialty outlets:	
Power density:	PW1
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L4
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Utility Structure is a free standing storage structure suitable for building or grounds maintenance equipment. Interior Door: If interior door used, shall be ID3	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	AS-38
Area Type:	Waiting Room
Minimum Assignable Area (ASF):	150 to 250
Function:	Confidential waiting rooms
Min Ceiling Height:	9'-0"
Daylighting / Views:	D2
Visual Privacy:	PR1
Interior glazing	Not permitted
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H1
SYSTEMS	
Acoustics:	AC7
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L5
Lighting control	LC8

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	
Special system:	
Wireless Requirements:	TW1
CATV/SMATV Connections:	Two (2) wall mount CATV connections in room.
Video Surveillance:	Full Coverage: CCTV coverage of entire area with multiple (minimum 2) view angles of entire space and all entrances/access points. Developer shall design camera locations and install cameras to ensure video capture of the faces of persons entering or exiting space.
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Each waiting room requires its own separate entrance (for privacy).	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-27
Area Type:	Walkway: Primary
Function:	Pedestrian and light vehicular traffic.
CHARACTERISTICS	
Paving:	SPV3
Traffic Load:	TL3
Lighting:	SL3
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL4
Signage:	SS1
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-28
Area Type:	Walkway: Secondary
Function:	Pedestrian and light vehicular traffic.
CHARACTERISTICS	
Paving:	SPV4
Traffic Load:	TL3
Lighting:	SL3
Power:	SP4
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL4
Signage:	SS1
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	EX-29
Area Type:	Water Tank
Function:	
CHARACTERISTICS	
Paving:	SPV5
Traffic Load:	TL3
Lighting:	SL1
Power:	SP1
Video Surveillance:	
Wireless:	TW1
Plumbing:	SPL1
Signage:	SS5
Public Address:	PA3
Landscaping:	LS6
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-12
Area Type:	Work Room
Minimum Assignable Area (ASF):	120 to 980
Function:	General work space
Min Ceiling Height:	9'-0"
Daylighting / Views:	
Visual Privacy:	
Interior glazing	RL4
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C2
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	ID02
Hardware:	H5
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	Potable hot & cold water
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, 2 recessed floor quad
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC6

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Two (2) data ports on perimeter walls at max 6' on center
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-03
Area Type:	Work Station 01
Minimum Assignable Area (ASF):	50
Function:	Workstation
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, power to electrified workstations
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC5

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, data to electrified workstations
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Workstation itself is 6'x6' (including chair space); balance of ASF is circulation at the workstation.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-04
Area Type:	Work Station 02
Minimum Assignable Area (ASF):	65
Function:	Workstation
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, power to electrified workstations
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC5

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, data to electrified workstations
Special system:	
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Workstation itself is 6'x6' (including chair space); balance of ASF is circulation at the workstation.	

Area Datasheets

UC Merced 2020 Area Datasheet

GENERAL	
Unique ID:	GN-30
Area Type:	Work Station 02: Reception
Minimum Assignable Area (ASF):	65
Function:	Workstation
Min Ceiling Height:	9'-0"
Daylighting / Views:	D3
Visual Privacy:	
Interior glazing	
Occupancy (Code):	B
FINISHES / TREATMENT	
Floor / Base:	F1
Ceiling:	C1
Walls:	W1
Partition point load capacity:	PL1
Window shading (exterior):	S1
Interior Doors:	
Hardware:	Not permitted
SYSTEMS	
Acoustics:	AC4
Vibration Criteria:	V3
Additional Security Features:	
Fire protection:	FP1
HVAC	
Temperature range:	TR1
Air changes/ventilation:	VR1
Recirculation:	HV-R1
Thermostatic control:	HV-T1
Positive/negative pressure:	HV-P2
Plumbing:	
Fixture Type:	
Piped services:	
Special drains:	
Power	
User Convenience (excludes outlets for AV, security, etc.):	Duplex on perimeter walls at max 6' on center, power to electrified workstations
Specialty outlets:	
Power density:	PW2
Power conditioning:	
Standby power:	
UPS:	No
Energy Use Category	EU1
Lighting level	L2
Lighting control	LC5

Area Datasheets

UC Merced 2020 Area Datasheet

Clock System	No
Telecommunications	
Outlet (excludes outlets for AV, security, etc.):	Data port on perimeter walls at max 6' on center, data to electrified workstations
Special system:	Silent duress alarm
Wireless Requirements:	TW2
CATV/SMATV Connections:	
Video Surveillance:	
Shielding:	
EQUIPMENT	
Built-in features:	None
ADDITIONAL REQUIREMENTS	
Workstation itself is 6'x6' (including chair space); balance of ASF is circulation at the workstation.	

APPENDIX 7 – FF&E PACKAGES

(See attached.)

UCM 2020: FF&E PACKAGES

Note: The FF&E Packages are listed alphabetically by name (without the number)

001c - Apartment: Staff/Faculty in Residence

Quantity	Item	Additional Information
1	Dishwasher, Generic	
1	Microwave, Generic	
1	Oven/Stove, Generic	
1	Refrigerator, Generic	
1	Washer & Dryer Stack	

004 - Ballroom

Quantity	Item	Additional Information
24	Chair Transport & Storage Dolly	
800	Chair, Guest	Steelcase Player
1	Dance Floor (Total dance floor area 1,600 SF)	(Movable dance floor with interlocking panels and edge trim, Floor shall have waterproof finish. Including storage cart. Basis of design Snaplock plus)
3	Lectern/Podium, movable	
2	Stage with steps, 30'x12', demountable	
31	Table, Banquet 8' round	
62	Table, Meeting Room	Steelcase Tangram Model#: Train TN6030C (Rectangular 60"x30"x28.5" Flip Top)

005 - Bedroom: Single

Quantity	Item	Additional Information
1	Bed	Thurston Manufacturing Model#: 145-M-M1-HW-8-SPY (Single solid maple bunkable and loftable bed H35.5" x W85" x D40")
1	Chair, 2 Position	Sauder Education Plylock Model#: 702-8812 (2 Position chair, Uph seat, uph back 2" W20" x D22.5" x H32.5")
1	Desk, Writing	Thurston Manufacturing Model#: T-91133-45 (KT) (Maple veneer 1-drawer writing desk, keyboard tray, Coast metal frame. H30" x W44.5" x D24")
1	Mattress, twin extra-long	Thurston Model#: 364T-3880 (30" x 80")
2	Storage, Underbed	Thurston Manufacturing Model#: 140-2-M2 (Solid maple 2-drawer(tall) underbed storage, Stackable, Swivel with lockable top drawer H17" x W30" x D22")

005b - Bedroom: Double

Quantity	Item	Additional Information
2	Bed	Thurston Manufacturing Model#: 145-M-M1-HW-8-SPY (Single solid maple bunkable and loftable bed H35.5" x W85" x D40")
2	Chair, 2 Position	Sauder Education Plylock Model#: 702-8812 (2 Position chair, Uph seat, uph back 2" W20" x D22.5" x H32.5")
2	Desk, Writing	Thurston Manufacturing Model#: T-91133-45 (KT) (Maple veneer 1-drawer writing desk, keyboard tray, Coast metal frame. H30" x W44.5" x D24")
2	Mattress, twin extra-long	Thurston Model#: 364T-3880 (30" x 80")
4	Storage, Underbed	Thurston Manufacturing Model#: 140-2-M2 (Solid maple 2-drawer(tall) underbed storage, Stackable, Swivel with lockable top drawer H17" x W30" x D22")

005c - Bedroom: Triple

Quantity	Item	Additional Information
3	Bed	Thurston Manufacturing Model#: 145-M-M1-HW-8-SPY (Single solid maple bunkable and loftable bed H35.5" x W85" x D40")
3	Chair, 2 Position	Sauder Education Plylock Model#: 702-8812 (2 Position chair, Uph seat, uph back 2" W20" x D22.5" x H32.5")
3	Desk, Writing	Thurston Manufacturing Model#: T-91133-45 (KT) (Maple veneer 1-drawer writing desk, keyboard tray, Coast metal frame. H30" x W44.5" x D24")
3	Mattress, twin extra-long	Thurston Model#: 364T-3880 (30" x 80")
6	Storage, Underbed	Thurston Manufacturing Model#: 140-2-M2 (Solid maple 2-drawer(tall) underbed storage, Stackable, Swivel with lockable top drawer H17" x W30" x D22")

006 - Break Room / Kitchenette

Quantity	Item	Additional Information
8	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Microwave, Generic (Built-in)	
1	Refrigerator, Generic	
4	Table, Flip top, 72"	Steelcase Akira

007 - Cashier Room

Quantity	Item	Additional Information
4	Chair, high top	Steelcase Player (wheeled, padded)
5	Chair, Office	Steelcase Think
1	Table w/privacy partition	
4	Teller pedestal	
3	Workstation, general	Steelcase Answer

102 - Central Dining

Quantity	Item	Additional Information
700	Chair, Player	Steelcase Player Series 475 (leg base with arms)
20	Exterior table/5 chair combination (Backed 5-chair)	Landscape Forms 35 Collection Mingle Seating (5 chair with backs, and integral canopy)
150	Table, Dining	

030 - Classroom 1: 299 Seat, Stepped Seating

Quantity	Item	Additional Information
1	Chair, wheeled, height adjustable	Steelcase Cachet
1	Counter, Movable, Science demonstration	Fleetwood (60"x24" mobile science lab station w/black epoxy top, tray storage)
1	Table, classroom ,with modesty panel	Steelcase Airtouch

031 - Classroom 2: 90 Seat (TEAL), Flat Floor

Quantity	Item	Additional Information
90	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Chair, wheeled, height adjustable	Steelcase Cachet
1	Table, classroom	Steelcase Airtouch
10	Table, Fixed 8'	Steelcase E-Table

029 - Classroom 3: 90 Seat, Flat Floor

Quantity	Item	Additional Information
90	Chair w/tablet arm and basket base	Steelcase Node
1	Chair, wheeled, height adjustable	Steelcase Cachet
1	Table, classroom	Steelcase Airtouch

008 - Classroom 4: 30 seat

Quantity	Item	Additional Information
30	Chair w/tablet arm and basket base	Steelcase Node
1	Chair, wheeled, height adjustable	Steelcase Cachet
1	Table, classroom	Steelcase Airtouch

009 - Classroom 8: Child

Quantity	Item	Additional Information
40	12" Chair	Community Playthings Woodcrest Model#: J712
2	Activity Table	Community Playthings Model#: A811 (A811 Classroom Activity Table w/adjustable legs (medium 4 pack))
2	Armchair, Child's ,Tan	Community Playthings Model#: J642 (Tan)
2	Carpet, Large	Joy Carpets Portrait
2	Carpet, Small	Joy Carpets Portrait
2	Dress-up Unit	Community Playthings Model#: C705
2	Drying Rack	Community Playthings Model#: H560
2	HideAway Cube	Community Playthings Model#: F792 (C707 Flower Fern, w/deep baskets)
2	Island, 32"	Community Playthings Model#: F795
2	Island, Preschool Storage	Community Playthings Model#: A231
2	Kitchen, Play, set of four	Community Playthings Woodcrest Model#: C360
2	Mini Art Island	Community Playthings Model#: H500
6	Nursery Table	Community Playthings Model#: A815 (Classroom Nursery Table w/adjustable legs (medium 4pack))
2	Playsize Set of Four	Community Playthings Model#: C136
10	Preschool Cubby w/Totes or baskets	Community Playthings Model#: A269
2	Rocking Boat	Community Playthings Model#: V43
2	Rocking Chair	Community Playthings Model#: J800
2	Round 20" table w/ 2 12" chairs	Community Playthings Woodcrest Model#: C234
2	Round 36" table w/adjustable legs (medium 4pack)	Community Playthings Model#: A825
2	Sand & Water Center	Community Playthings Model#: A625 (Small Sand & Water Center w/small clear pan)
4	Shelf, Fixed, 3'x32"	Community Playthings Model#: F665
2	Shelf, Fixed, 4'x40"	Community Playthings Model#: F647
2	Shelf, Fixed, 5'x32"	Community Playthings Model#: F652
2	Shelf, Open Back 4'x32"	Community Playthings Model#: F656
4	Shelf, Trans. Back 4'x32"	Community Playthings Model#: F649
4	Shelf, Trans. Back Sweep 32"	Community Playthings Model#: F626

2	Sofa, Child's ,Neutral	Community Playthings Model#: H652 (Neutral color)
2	Supply Unit w/totes or baskets	Community Playthings Model#: H578
4	Teacher Chair 12"	Community Playthings Model#: J432
2	Toddler Book Display	Community Playthings Model#: F381
2	Tote Shelf 2'x40" with shallow baskets	Community Playthings Model#: F589
2	Work Table w/adjustable legs (medium 4 pack)	Community Playthings Model#: A801

024b - Classroom Laboratory 8: Service

Quantity	Item	Additional Information
1	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
	Shelf, Adjustable 3 Tier (8 LF)	Kewaunee Scientific Corporation Model#: 11602-2.5A+B

094 - Classroom Laboratory: Computational

Quantity	Item	Additional Information
8	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Chair, wheeled, height adjustable	Steelcase Cachet
1	Table, classroom	Steelcase Airtouch
2	Table, Fixed 8'	Steelcase E-Table

025 - Classroom Laboratory: Dry

Quantity	Item	Additional Information
25	Chair, wheeled, height adjustable	Steelcase Cachet
1	Relocatable instructor workstation	(epoxy countertop; minimum 8' length)
1	Relocatable student workstations to seat 24 students	(epoxy countertops)

041 - Classroom Laboratory: Maker Space

Quantity	Item	Additional Information
1	3-D Printer	
	Chair, Office (Quantity to be determined by need)	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Laser Cutter	
1	Vinyl Cutter	

026 - Classroom Laboratory: Wet

Quantity	Item	Additional Information
4	Cabinet - 2 door 6'H - locking	
25	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Relocatable instructor workstation	(epoxy countertop; minimum 8' length)
1	Relocatable student workstations to seat 24 students	(epoxy countertops)

014 - Closet: Custodial

Quantity	Item	Additional Information
1	Rack, steel	(6' x 8' x 2')

054 - Colloquy Space

Quantity	Item	Additional Information
	Chair, Lounge (Comfortable seating to fit space, promote informal gatherings)	Steelcase Coalesse Thoughtful
	Couch, Adult (Comfortable seating to fit space, promote informal gatherings)	
	Table, general (Numbers & sizes (coffee, side table) to fit space)	

013 - Conference Room 01: 8 seats

Quantity	Item	Additional Information
8	Chair, Office ,Black w/casters	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Credenza	Steelcase
1	Table, Fixed 8' ,Instant Iron Patina Top, Mist Edge, Slate Base and Column	Steelcase E-Table

073a - Conference Room 01: 8 seats - Chancellor

Quantity	Item	Additional Information
8	Chair, Office ,Dtex Friendly Faux - Panther	Steelcase Think
1	Credenza	Steelcase
1	Table, Fixed 8' ,Blonde on maple, Bull nose wood edge.	Steelcase E-Table

012 - Conference Room 02: 10-12 seats

Quantity	Item	Additional Information
12	Chair, Office ,Black with Casters	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Credenza	Steelcase
1	Table, Fixed 12' ,Instant Iron Patina Top, Mist Edge, Slate Base and Column	Steelcase E-Table

**073b- Conference Room 02: 10-12 seats -
Chancellor**

Quantity	Item	Additional Information
12	Chair, Office ,Dtex Friendly Faux - Panther	Steelcase Think
1	Credenza	Steelcase
1	Table, Fixed 12' ,Blonde on maple, Bull nose wood edge.	Steelcase E-Table

011 - Conference Room 03: 24 seats

Quantity	Item	Additional Information
24	Chair, Office ,Black with Casters	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
2	Credenza	Steelcase
12	Table, Flip top, 72" ,Instant Iron Patina Top, Mist Edge, Slate Base and Column	Steelcase Akira

**073c - Conference Room 03: 24 seats -
Chancellor**

Quantity	Item	Additional Information
24	Chair, Office ,Dtex Friendly Faux - Panther	Steelcase Think
1	Credenza	Steelcase
2	Table, Fixed 8' ,Blonde on maple, Bull nose wood edge.	Steelcase E-Table

103 - Conference Room 03: 72 seats

Quantity	Item	Additional Information
72	Chair, Office ,Black with Casters	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Lectern/Podium, movable	

36	Table, Flip top, 72" ,Instant Iron Patina Top, Mist Edge, Slate Base and Column	Steelcase Akira
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078 - ECEC Support Space

Quantity	Item	Additional Information
2	Chair, Office	Steelcase Think
1	Dishwasher, Generic	
1	Microwave, Generic	
1	Oven/Stove, Generic	
1	Refrigerator, Generic	

017 - Exam Room

Quantity	Item	Additional Information
1	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Computer charting station and vital station height.	
1	Stool, Exam, height adjustable, wheeled	Midmark
1	Table, Exam	Midmark Model#: 230 (Motorized Procedure Table)

057 - Fields: Competition

Quantity	Item	Additional Information
2	Backstop Netting System	Kwik Goal Soccer Backstop Model#: 7B101
2	Benches, Team	Kwik Goal Custom Elite Shelter (24' of covered bench)
6	Flags, Corner	Kwik Goal Premier Model#: 9B5316 (Corner Flags)
1	Scoreboard, Soccer/Multisport ,Navy	Daktronics Multisport Model#: SO-2011 (Scoreboard with wireless controller)
4	Soccer Goal Nets	Kwik Goal Evolution Model#: 3B2162 (8'Hx24'Wx3'D 120 mm square mesh)
2	Soccer Goals	Kwik Goal Fusion Model#: Fusion 120 (Game and practice goals with wheels)

019 - Group Therapy, CAPS

Quantity	Item	Additional Information
12	Chair, Lounge ,pleather	Steelcase Coalesse Thoughtful
2	Table, general (Moveable, 6 foot)	
1	Table, Side	Steelcase Coalesse Derby

020 - Group Therapy, Other

Quantity	Item	Additional Information
12	Chair, Lounge ,pleather	Steelcase Coalesse Thoughtful

021 - Information Desk

Quantity	Item	Additional Information
1	Chair, office, general	
1	Workstation with pedestal	Steelcase Answer

022 - Intake: Confidential

Quantity	Item	Additional Information
2	Chair, Office	Steelcase Think

024 - Laboratory: Service

Quantity	Item	Additional Information
	Shelf, Adjustable 3 Tier	Kewaunee Scientific Corporation Model#: 11602-2.5A+B

096 - Laboratory: Medical

Quantity	Item	Additional Information
1	Cabinet, LN2 metal storage	
1	Centrifuge	
1	CLIA Waived Chemistry Analyzer	
1	CLIA Waived Hematology Analyzer	
1	Freezer, Blood Bank/Laboratory	(Bank/Laboratory grade undercounter freezer with 24/7 temperature recorder, dial out monitor and UPS)
1	Ice Machine	(Ice Machine (needs water supply and floor drain) – 2640 lb minimum)
2	Microscopes	
1	Refrigerator, Blood Bank/Laboratory Grade	(full size refrigerator with 24/7 temperature recorder, dial out monitor and UPS (x2))
1	Urine Analyzer	Clinitek

028 - Lactation Room

Quantity	Item	Additional Information
1	Chair, Lounge	Steelcase Coalesse Thoughtful
1	Table, Side	Steelcase Coalesse Derby

076 - Laundry: Athletics

Quantity	Item	Additional Information
1	Dryer, Stack	UniMac Model#: UniMac/UTT45NQT (45lb stack dryer)
2	Washer, High Extraction	UniMac Model#: UniMac/UCN040HNFX (40 lb capacity high extraction machines)

084 - Laundry: Housing

Quantity	Item	Additional Information
18	Dryer	Maytag Model#: MLG24PR (Gas single load stack dryer, 120V 30A, H76" x D29" x W27", Debit ready)
18	Washer, Front Load	Speed Queen (120V 15-20A, H43" x D30" x W27", Debit ready)

034 - Lobby

Quantity	Item	Additional Information
4	Chair, Lounge	Steelcase Coalesse Thoughtful
1	Couch, Adult	
1	Table, Coffee	Steelcase Coalesse
2	Table, Side	Steelcase Coalesse Derby

075 - Lobby - Chancellor

Quantity	Item	Additional Information
4	Chair, Lounge	Steelcase Coalesse Thoughtful
1	Couch, Adult	
1	Table, Coffee ,Mahogany on Walnut	Steelcase Coalesse
2	Table, Side ,Mahogany on Walnut	Steelcase Coalesse Derby

033 - Lobby / Queuing

Quantity	Item	Additional Information
	Table, general	

037 - Lockers: Athletics - Aquatic

Quantity	Item	Additional Information
4	Bench (As needed)	(Wood benches along locker banks (6' long))
2	Dryer, Suit	Suitmate (Swimsuit water extractor)

039 - Lockers: Athletics - Team

Quantity	Item	Additional Information
4	Bench (As needed)	(Wood benches along locker banks (6' long))
1	Whiteboard	Steelcase Polyvision

037b - Lockers 02: Public

Quantity	Item	Additional Information
8	Bench (As needed)	(Wood benches along locker banks (6' long))
4	Dryer, Suit	Suitmate (Swimsuit water extractor)

**040 -
Lounge**

Quantity	Item	Additional Information
4	Chair, Lounge	Steelcase Coalesse Thoughtful
2	Loveseat, Soft	Steelcase Coalesse Thoughtful
4	Table, Side	Steelcase Coalesse Derby

042 - Multi-Purpose

Quantity	Item	Additional Information
2	Chair Transport & Storage Dolly -Max Stacker	Steelcase Max Stacker II Model#: PBI # 793359 (Black)
60	Chair, Stacking	Steelcase Max Stacker II Model#: 473410N
16	Table, Flip top, 72"	Steelcase Akira

043 - Nursing Area

Quantity	Item	Additional Information
8	Chair, Office	Steelcase Think

090 - Observation Room

Quantity	Item	Additional Information
2	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)

044 - Office: Counseling (CAPS)

Quantity	Item	Additional Information
1	Bookcase, 5-shelf ,Mist (Optional - Can be swapped for TS 5-drawer lateral file)	Steelcase Universal Storage
2	Chair, Guest ,Lagoon Midnight	Steelcase Player

1	Chair, Office ,Lagoon Midnight	Steelcase Think
1	Desk, Adjustable Height ,Slate (Optional desk choice)	Steelcase Series 7 (Adjustable height desk with modesty panel)
1	Desk, free standing w/ double pedestals ,Slate	Steelcase Context (Workspace)
1	Lateral File (5 drawer) ,Mist (Optional - Can be swapped for Universal Storage 5-shelf bookcase)	Steelcase TS 200 Series
2	Light, Task ,LED or Fluorescent	Steelcase Context
1	Light, Undermount ,LED or Fluorescent	Steelcase Context
1	Loveseat, Soft ,pleather	Steelcase Coalesse Thoughtful
2	Overhead bin ,Mist (Can be swapped for shelf)	Steelcase Context
1	Table, Side	Steelcase Coalesse Derby

099 - Office: Huddle Room

Quantity	Item	Additional Information
4	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Table, Square	Sauder Model#: 705-0288 (42" x 42" x 28 3/4" Square table, soft edge 1.25", Kensington maple)

071 - Office: Leadership

Quantity	Item	Additional Information
2	Chair, Guest ,Lagoon Midnight	Steelcase Player
1	Chair, Office ,Use Dtex Friendly Faux	Steelcase Think
1	Workstation with pedestal ,Mahogany on Walnut Open Pore (Elective Elements - Vice Chancellors Code Name Wood 3772 Mahogany on Walnut Open Pore Edge Profile Bullnose - Page 122 Drawer Fronts E070 Contemporary Pull, Wood Front - Pg 123 Drawer Pulls 9212 Silver)	Steelcase Answer

045 - Office: Private

Quantity	Item	Additional Information
1	Bookcase, 5-shelf ,Mist (Optional - Can be swapped for TS 5-drawer lateral file)	Steelcase Universal Storage
2	Chair, Guest ,Lagoon Midnight	Steelcase Player
1	Chair, Office ,Lagoon Midnight	Steelcase Think
1	Desk, Adjustable Height ,Slate (Optional desk choice)	Steelcase Series 7 (Adjustable height desk with modesty panel)
1	Desk, free standing w/ double pedestals ,Instant	Steelcase Context (Workspace)

	Iron Patina	
1	Fabric covered tack board ,Slate	Steelcase Context
1	Lateral File (5 drawer) ,Mist, Flush Front (Optional - Can be swapped for Universal Storage 5-shelf bookcase)	Steelcase TS 200 Series
2	Light, Task ,LED or Fluorescent	Steelcase Context
1	Light, Undermount ,LED or Fluorescent	Steelcase Context
2	Overhead bin ,Mist (Can be swapped for shelf)	Steelcase Context

045b - Office: Shared

Quantity	Item	Additional Information
2	Bookcase, 5-shelf ,Mist (Optional - Can be swapped for TS 5-drawer lateral file)	Steelcase Universal Storage
4	Chair, Guest ,Lagoon Midnight	Steelcase Player
2	Chair, Office ,Lagoon Midnight	Steelcase Think
2	Desk, Adjustable Height ,Slate (Optional desk choice)	Steelcase Series 7 (Adjustable height desk with modesty panel)
2	Desk, free standing w/ double pedestals ,Instant Iron Patina	Steelcase Context (Workspace)
2	Fabric covered tack board ,Slate	Steelcase Context
2	Lateral File (5 drawer) ,Mist, Flush Front (Optional - Can be swapped for Universal Storage 5-shelf bookcase)	Steelcase TS 200 Series
4	Light, Task ,LED or Fluorescent	Steelcase Context
2	Light, Undermount ,LED or Fluorescent	Steelcase Context
4	Overhead bin ,Mist (Can be swapped for shelf)	Steelcase Context

046 - Phlebotomy

Quantity	Item	Additional Information
1	Chair, Clinical Recliner	Winco Carecliner Model#: 6530 or 6531
1	Chair, wheeled, height adjustable	Steelcase Cachet

095 - Procedure/Casting

Quantity	Item	Additional Information
1	Cart with pump for suction	
1	Monitor, Digital Xrays	Barco 2MP Eonis Model#: MDRC-2224 / K9303005A (24" High-Precision Display)
1	Stool, Exam, height adjustable, wheeled	Midmark
1	Table, Exam	Midmark Model#: 230 (Motorized Procedure Table)
1	Vacuum & Saw	DeSoutter Model#: CC5 (Cast saw w/ vacuum)
1	Vitals Station	(Interfaced with EMR (Point & Click))

003b - Research Laboratory 10: Glasswash and autoclave room

Quantity	Item	Additional Information
6	Drying Rack	Interdryne Systems "V" Victoria series (stainless steel with white polypropylene pegs, screen and drip trough. Custom sized 26" wide.)

067 - Research Laboratory 14: Vivarium

Quantity	Item	Additional Information
1	Animal Transfer Station	Allentown Phantom
3	Autoclave, 36" pass-through	
1	Autoclave, 36" single sided	
1	Autoclave, 84" single sided	
1	Base & wall cabinet w/sink, 8'	
1	Bedding dispenser	Allentown FreeFlow
1	Bedding Disposal Station	Allentown Phantom
2	Biocontainment Systems, Mouse	bCON (Dedicated, negative pressure, directional air flow HVAC)
2	Biocontainment Systems, Rat	bCON (Dedicated, negative pressure, directional air flow HVAC)
1	Bottle Filling Station	Elkay EZH2O Model#: LZSTL8WSLK
2	BSL2 Biocontainment hood, non-ducted	
	BSL2 Biocontainment safety cabinet workstation (1 per each Procedure Room)	

1	BSL3 Bedding Dump Station	
1	BSL3 Biocontainment safety cabinet workstation	
1	Cabinet - 2 door 6'H - locking	
1	Cage & Rack Washer	Gentinge GEW 2100 LS
12	Cage Rack, Double-sided Mouse	Allentown P/NC Rack Model#: 75J AG (IVC System double-sided with same side plenums)
4	Cage Rack, Double-sided, Rat	Allentown PNC Rack (PNC System double face with opposite side plenums)
1	Cage Rack, Single-sided, Rabbit	Allentown Euro Rabbit Model#: RBEURO-06 (Single sided cage rack for rabbits)
4	Chair, Guest	Steelcase Player
4	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
2	Desk, free standing w/ double pedestals	Steelcase Context (Workspace)
1	Freezer, controlled rate	
6	Locker, staff	(24"x24", full height)
	Necropsy table (1 per each Procedure room)	
1	Rack, feed and bedding storage	
	Surgical light (1 per each Procedure Room)	
2	Table, Square	Sauder Model#: 705-0288 (42" x 42" x 28 3/4" Square table, soft edge1.25", Kensington maple)

018 - Research Laboratory 15: Greenhouse

Quantity	Item	Additional Information
8	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
6	Germination Chambers	Conviron Model#: G1000
6	Growth chambers	Conviron Model#: A1000
2	Table, Square	Sauder Model#: 705-0288 (42" x 42" x 28 3/4" Square table, soft edge1.25", Kensington maple)
2	Workstation with pedestal	Steelcase Answer

102 - Research Laboratory 16: BSL3 Suite

Quantity	Item	Additional Information
2	Autoclave, 36" pass-through	
1	Autoclave, 36" single sided	
9	Biosafety Hood ,3 per room	
	Locker, staff	(24"x24", full height)

027 - Research Laboratory: Wet

Quantity	Item	Additional Information
	Cabinets, Wood ,Natural Maple	Kewaunee Scientific Corporation
	Chair, wheeled, height adjustable ,Black	Steelcase Cachet
	Countertop, epoxy ,graphite	Durcon, Inc
	Drying Rack	Interdryne Systems "V" Victoria series (stainless steel with white polypropylene pegs, screen and drip trough. Custom sized 26" wide.)
	Shelf, Adjustable 3 Tier	Kewaunee Scientific Corporation Model#: 11602-2.5A+B

**032 -
Staging**

Quantity	Item	Additional Information
10	Cabinet - 2 door 6'H - locking	
1	Cylinder Rack	
4	Dolly / 4wheel roller	
2	Pallet Jack, 2 Ton	
2	Table, Work	

003 - Sterile supplies/autoclave/glasswash

Quantity	Item	Additional Information
1	Autoclave, tabletop	
2	Drying Rack	Interdryne Systems "V" Victoria series (stainless steel with white polypropylene pegs, screen and drip trough. Custom sized 26" wide.)

059 - Storage: Chemical

Quantity	Item	Additional Information
1	Cabinet, Storage, Corrosive, Tall Level 1	Justrite Model#: 891702
1	Cabinet, Storage, Flammable Liquid/Solvent	Justrite Model#: 893000
3	Rack, steel	(6' x 8' x 2')

058 - Storage: General

Quantity	Item	Additional Information
3	Rack, steel (# of racks sized appropriately to room)	(6' x 8' x 2')

060 - Study Room

Quantity	Item	Additional Information
8	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Table, Fixed 8'	Steelcase E-Table

092 - Tech/Control

Quantity	Item	Additional Information
3	Chair, wheeled, height adjustable	Steelcase Cachet

064 - Ticket Office

Quantity	Item	Additional Information
2	Chair, wheeled, height adjustable	Steelcase Cachet

085 - Triage

Quantity	Item	Additional Information
1	Chair, Office	Steelcase Cachet 487 Series Model#: 4871110 (Pneumatic Height, Arm, Non-upholstered)
1	Computer charting station and vital station height.	
1	Light, Task ,LED or Fluorescent	Steelcase Answer
1	Light, Undermount ,LED or Fluorescent	Steelcase Answer
1	Overhead bin ,Mist (can be swapped for shelf)	Steelcase Answer
1	Stool, Exam, height adjustable, wheeled	Midmark
1	Table, Triage	Midmark Ritter
1	Workstation with pedestal ,Instant Iron Patina & Mist; Optic (fabric)	Steelcase Answer

068 - Workroom

Quantity	Item	Additional Information
	Chair, Generic	
	Table, general	

069 - Workstation

Quantity	Item	Additional Information
1	Chair, Office ,Lagoon Midnight	Steelcase Criterion
1	Light, Task ,LED or Fluorescent	Steelcase Answer
1	Light, Undermount ,LED or Fluorescent	Steelcase Answer
1	Overhead bin ,Mist (can be swapped for shelf)	Steelcase Answer
1	Workstation with pedestal ,Instant Iron Patina & Mist; Optic (fabric)	Steelcase Answer

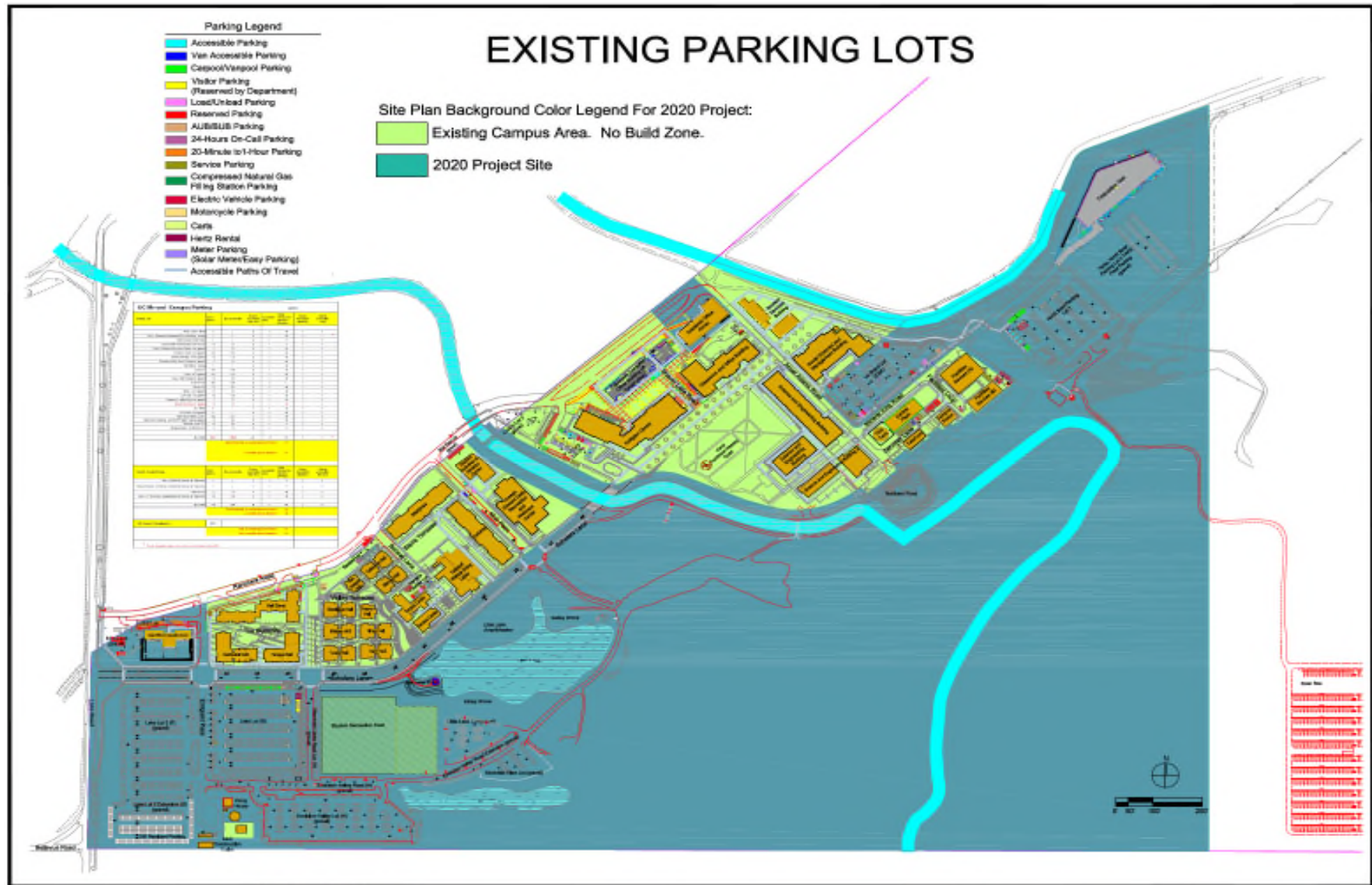
070 - Workstation: Reception

Quantity	Item	Additional Information
1	Chair, Office ,Lagoon Midnight	Steelcase Criterion
1	Desk, Reception with countertop ,Instant Iron Patina & Mist; Optic (fabric)	Steelcase Context (with extended corner)
1	Light, Task ,LED or Fluorescent	Steelcase Answer
1	Light, Undermount ,LED or Fluorescent	Steelcase Answer
1	Overhead bin ,Mist (can be swapped for shelf)	Steelcase Answer

072 - Workstation: Reception (Chancellor)

Quantity	Item	Additional Information
1	Chair, Office ,Use Dtex Friendly Faux	Steelcase Think
1	Workstation with pedestal ,Mahogany on Walnut Open Pore	Steelcase Answer

APPENDIX 8 – EXISTING PARKING LOTS



DATE: SEPTEMBER 22, 2015
Paper Size: 36x48

Note: This site plan is for presentation purpose only. It is not an official working document.

UNIVERSITY OF CALIFORNIA,
MERCED

DWG REF: UCMERGED PARKING SITE PLAN-20150922.DWG

APPENDIX 9 – EXISTING CHILLED WATER SYSTEM SEQUENCE OF OPERATIONS

This Appendix 9 describes the sequence of operations of the existing Central Plant.

(a) General:

- (i) The existing system has five (5) chillers: CH-1, CH-2 and CH-3 were installed as part of the original construction. Chillers CH-4 and CH-5 were installed as part of the recent upgrades to the existing Central Plant.
- (ii) Following the recent existing Central Plant upgrade project, CH-1 and CH-2 are not currently utilized in the current Central Plant operation due to ongoing issues with elevated wet bulb temperatures and are kept as emergency backup.
- (iii) CH-4 evaporator is piped in series, up-stream of CH-5 evaporator. CH-4 evaporator leaving water temperature equals CH-5 evaporator entering water temperature. CH-5 evaporator leaving water temperature equals 39°F year-round. During peak conditions, CH-4 evaporator entering water temperature equals 65°F, and the primary chilled water flow rate is 2,310 gpm to achieve 2,500 tons total across CH-4 and CH-5. During off-peak conditions, CH-4 evaporator entering water temperature equals 55°F, and the primary chilled water flow rate is 3,750 gpm to achieve 2,500 tons total across CH-4 and CH-5. The primary chilled water flow rate is adjusted proportionally between 2,310 gpm and 3,750 gpm as the CH-4 evaporator entering water temperature varies from 65°F to 55°F.
- (iv) CH-4 and CH-5 condensers are piped in parallel. CH-4 and CH-5 condenser flow rate is 3,500 gpm each. The condenser water entering temperature varies from 80°F during peak conditions to 55°F during off-peak conditions.
- (v) CH-3 is a back-up chiller for chillers CH-1, CH-2, CH-4 and CH-5. CH-3 evaporator is piped in series, up-stream of CH-5 and CH-2 evaporator, and down-stream of CH-4 or CH-1 evaporator.
- (vi) Primary-secondary pump arrangement is used for chilled water pumping system.
- (vii) Primary pumps P-1 and P-2 for CH-1 and CH-2 were installed as part of the existing Central Plant original construction. Primary pumps P-101 and P-102 for CH-4 and CH-5 were installed as part of the recent upgrade. Two secondary pumps P-3 and P-4 were installed as part of the existing Central Plant original construction. One secondary pump P-103 was installed as part of the recent upgrade.
- (viii) Each chiller has a packaged safety and capacity control system furnished by chiller manufacturer.

(b) Chiller Start-Stop:

- (i) Chiller is energized through the existing BMS via hard-wired discrete output.
- (ii) Once chiller is energized and flow has been proven, chiller is automatically cycled depending on load condition by automatic start and stop controls furnished by unit manufacturer.

(c) Chilled Water Pumps Operation:

- (i) Two primary chilled water pumps installed as part of the recent upgrade (P-101 and P-102) are sized for one hundred percent (100%) capacity and are piped in parallel.
- (ii) Primary chilled water pumps are energized automatically through EMCS via hardwired discrete output.
- (iii) Primary chilled water pump speed is modulated via hard-wired analog output to maintain flow rate as sensed by new flow meter FT-CH45CH. Flow rate setpoint is automatically calculated to ensure chillers are operating at maximum 2,500-ton capacity using the formula below:

$$\text{GPM} = (2500 \times 12,000) / [500 \times (\text{CHWRT} - \text{CHWSSP})]$$

where CHWRT is the chilled water return temperature to the chillers as sensed by existing temperature transmitter and CHWSSP is the chilled water supply setpoint (initially 39°F).

- (iv) EMCS logic equalizes run times on pumps.
- (v) Lead-lag software selects the lead pump. Whenever lead pump fails as sensed by VFD fault via Ethernet BACnet communication, lag pump starts after a ten (10)-second time delay and lead pump is de-energized.
- (vi) One primary pump P-101 or P-102 is enabled any time either chiller CH-4 or CH-5 is enabled.
- (vii) Both primary pumps P-101 and P-102 are disabled any time chiller CH-4 and CH-5 are both offline.
- (viii) Chillers and pumps are interlocked such that each chiller is allowed to operate only after chilled water and condenser water flow through the chiller evaporator and condenser have been proven.
- (ix) A flow switch at chiller evaporator nozzles is utilized to prove flow.
- (x) Automatic butterfly valves are installed to provide necessary chilled water flow path. Valves are interlocked to associated chilled water pumps with proper time delay so that valves are full open before pumps start and close after pumps stop. Valve positions are controlled in accordance with the table below based on which chillers are enabled.

Chillers Enabled				
		CH-4 and 5	CH-3 and 5	CH-4 and 3
Chilled Water Control Valve	IV-101	OPEN	CLOSED	OPEN
	IV-102	OPEN	OPEN	CLOSED
	IV-103	CLOSED	CLOSED	OPEN
	IV-104	CLOSED	OPEN	CLOSED
	IV-105	CLOSED	CLOSED	OPEN
	IV-106	CLOSED	OPEN	CLOSED

Table 1: Chillers Operation

(d) Secondary Chilled Water

- (i) Three secondary chilled water pumps (P-3 and P-4 installed as part of original construction, and P-103 installed as part of the recent upgrade) are sized for fifty percent (50%) capacity and are piped in parallel.
- (ii) Secondary chilled water pumps are energized automatically through EMCS via hard-wired discrete output.
- (iii) EMCS equalizes run times on pumps.
- (iv) A lead-lag software switch is used to select lead pump. Whenever lead pump fails as sensed by VFD fault via Ethernet BACnet communication, lag pump starts after a ten (10)-second time delay and lead pump shall be de-energized.
- (v) System has existing differential pressure sensor with pressure sensors located in secondary chilled water supply and return lines that modulate pump VFD through EMCS via hard-wired analog output as required to maintain constant, predetermined, field adjustable differential pressure setpoint.
- (vi) Lag pump and standby pump are energized based on system flow rate. Lead and lag pumps operate in tandem to satisfy pressure differential setpoint.

(e) Condenser Water Systems & Pumps - Control Sequence

- (i) Five condenser water pumps (P-11, P-12, and P-13 installed as part of original construction, and P-111 and P-112 installed as part of the recent upgrade) are sized for fifty percent (50%) capacity and are piped in parallel.
- (ii) Condenser water pumps are energized automatically through EMCS via hard-wired discrete output.
- (iii) Condenser water pump speed is modulated via hard-wired analog output to ramp up speed over sixty (60) seconds and then operate continuously at one hundred percent (100%) speed.

- (iv) EMCS equalizes run times on pumps.
 - (v) A lead-lag software switch is used to select lead pump. Whenever lead pump fails as sensed by VFD fault via Ethernet BACnet communication, lag pump starts after a ten (10)-second time delay and lead pump is de-energized.
 - (vi) For every chiller that is enabled, one condenser water pump is enabled.
 - (vii) Chillers and pumps are interlocked so that each chiller is allowed to operate only after chilled water and condenser water flow through the chiller evaporator and condenser has been proven.
 - (viii) A flow switch at the chiller condenser nozzles is used to prove flow.
 - (ix) Automatic butterfly valves are installed on the condenser water outlet of each existing chiller.
 - (x) Valves are interlocked with the associated chilled water pumps with proper time delay so that valves are full open before pumps start and close after pumps stop.
- (f) Cooling Tower - Control Sequence
- (i) System has nine (9) cooling towers: CT-1 through CT-9. Cooling towers are energized automatically through EMCS via hard-wired discrete output.
 - (ii) The cooling tower fan speed is modulated via hard-wired analog output to maintain a set temperature in the water leaving the towers, as sensed by the temperature transmitter in the condenser water supply from each cooling tower.
 - (iii) All the operational towers are modulated to the same speed.
 - (iv) The setpoint for the tower leaving water temperature control is reset based on outside air wet bulb temperature and is maintained at 5°F (adjustable) above the ambient wet bulb temperature for wet bulb temperatures above 70°F and 7°F (adjustable) above the wet bulb temperature for wet bulb temperatures below 70°F.
 - (v) A low limit of 55°F condenser water temperature is maintained.
 - (vi) Fan vibration switches are interlocked with fan VFD to disable cooling tower fan in the event of excessive vibration. This condition is detected through the EMCS.
 - (vii) Basin level probe assembly low level switch for nine (9) existing cooling towers alerts the BMS if activated via hard-wired discrete input.
- (g) Standby Power Operation
- (i) Upon loss of offsite power, hardwired loss of power signals from 480V automatic transfer switch is used to automatically start 480V standby generators. Loss of power signal is also input to the BMS. The BMS, upon loss of off-site power, inhibits all major loads which are backed up by standby diesel generator from restarting upon availability of standby

power. Upon verification of adequate and sufficient bus voltage, and automatic transfer switch is in "Emergency Power" position, BMS re-closes the "START/INHIBIT" contacts, in predetermined sequence, for critical loads on standby bus.

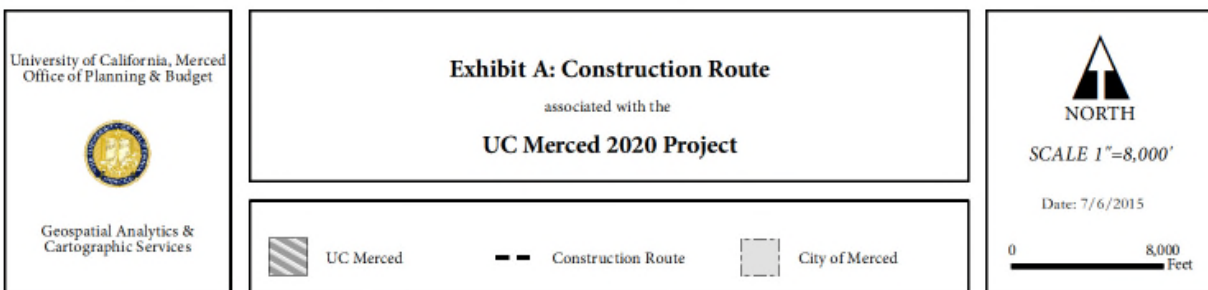
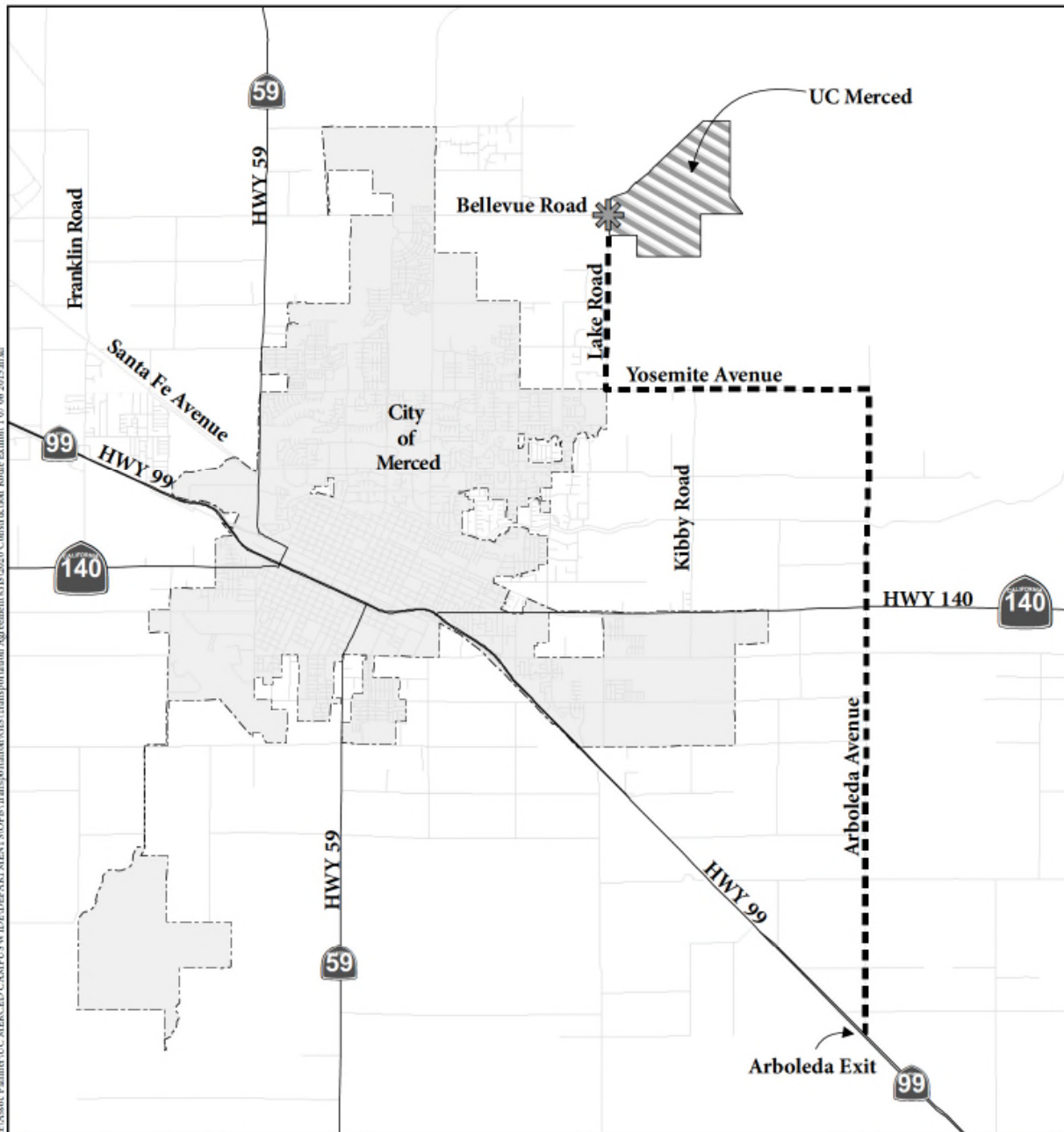
- (ii) All secondary chilled water pumps are powered from standby power bus. This equipment will function during loss of normal power.
- (iii) Mechanical systems restart automatically in the following order. Time interval between starts shall be ten (10) seconds:

First	Lead secondary chilled water pump
Second	Lag secondary chilled water pump (if required)
Third	Standby secondary chilled water pump (if required)

Table 2: Mechanical Systems Sequence of Operation

All equipment operating on standby power will continue to operate without interruption.

APPENDIX 10 – CONSTRUCTION ROUTE



APPENDIX 11 – PLANTING LIST

Trees		
	Botanical Name	Common Name
Planted on Existing Campus	<i>Acer macrophyllum</i>	Big Leaf Maple
	<i>Acer rubrum</i> 'Armstrong'	Red Maple 'Armstrong'
	<i>Aesculus californica</i>	Red Horsechestnut
	<i>Cedrus atlantica</i> 'Glaucous'	Blue Atlas Cedar
	<i>Cedrus deodara</i>	Deodar Cedar
	<i>Celtis sinensis</i>	Chinese Hackberry
	<i>Cercis occidentalis</i>	Western Redbud
	<i>Cornus</i> 'Eddie's White Wonder'	Western Dogwood
	<i>Fraxinus dipetala</i>	California Ash
	<i>Fraxinus oxycarpa</i> 'Raywood'	Raywood Ash
	<i>Fraxinus uhdei</i>	Shamel Ash
	<i>Fraxinus velutina</i> 'Rio Grande'	Fan Tex Ash
	<i>Ginkgo biloba</i>	Ginkgo/Maldenhalr Tree
	<i>Heteromeles arbutifolia</i>	Toyon
	<i>Lagerstroemia</i> x 'Muskogee'	Crape Myrtle 'Muskogee'
	<i>Lagerstroemia</i> x 'Tuscarora'	Crape Myrtle 'Tuscarora'
	<i>Lagerstroemia</i> x 'Natchez'	Crape Myrtle 'Natchez'
	<i>Liriodendron tulipifera</i>	Tulip Tree
	<i>Malus</i> 'Prairifire'	Crab Apple 'Prairifire'
	<i>Olea europaea</i>	Olive
	<i>Maytenus boaria</i>	Mayten Tree
	<i>Pistacia chinensis</i>	Chinese Pistache
	<i>Populus fremontii</i>	Fremont Cottonwood
	<i>Platanus acerifolia</i> 'Bloodgood'	London Plane Tree 'Bloodgood'
	<i>Pyrus calleryana</i> 'Aristocrat'	Aristocrat Callery Pear
	<i>Pyrus calleryana</i> 'Chanticleer'	Chanticleer Callery Pear
	<i>Quercus douglasii</i>	Blue Oak
	<i>Quercus ilex</i>	Holly Oak
	<i>Quercus lobata</i>	Valley Oak
	<i>Quercus rubra</i>	Red Oak
	<i>Robinia</i> x <i>ambigua</i> 'Idahoensis'	Idaho Locust
	<i>Salix babylonica</i>	Weeping Willow
	<i>Sequoiadendron giganteum</i>	Giant Sequoia
	<i>Sequoia sempervirens</i> 'Aptos Blue'	Coast Redwood 'Aptos Blue'
	<i>Ulmus parvifolia</i> 'Sempervirens'	Chinese Evergreen Elm
	<i>Umbellularia californica</i>	California Bay Laurel
	<i>Zelkova serrata</i> 'Green Vase'	Sawleaf Zelkova 'Green Vase'
Suggested Future Candidates	Botanical Name	Common Name
	<i>Acer x fremannii</i> 'Autumn Blaze'	Hybrid Maple
	<i>Aesculus californica</i>	California Buckeye
	<i>Cercidium</i> x <i>Desert Museum</i>	Desert Museum' Hybrid Palo Verde
	<i>Chitalpa linearis</i>	Desert Willow Hybrid
	<i>Cinnamomum camphora</i>	Camphor
	<i>Juniperus californica</i>	California Juniper
	<i>Lagerstroemia fauriei</i> cvs	Crepe Myrtle
	<i>Liriodendron tulipifera</i>	Tulip Tree
	<i>Parkinsonia aculeata</i>	Mexican Palo Verde
	<i>Pinus sabiniana</i>	Grey Pine
	<i>Populus alba pyramidalis</i>	White Poplar
	<i>Populus nigra italica</i>	Lombardy Poplar
	<i>Prosopis glandulosa</i>	Honey Mesquite
	<i>Pyrus calleryana</i> 'Aristocrat'	Sand Pear
	<i>Quercus wislizenii</i>	Interior Live Oak
	<i>Platanus racemosa</i>	California Sycamore

Trees

	Botanical Name	Common Name
	<i>Populus fremontii</i>	Fremont Cottonwood
	<i>Salix Gooddingii</i>	Willow
	<i>Salix laevigata</i>	Red Willow
	<i>Salix lasiandra</i>	Black Willow
	<i>Alnus rhombifolia</i>	Sierra Alder
	<i>Fraxinus latifolia</i>	Ash
	<i>Quercus wislizenii</i>	Interior Live Oak
	<i>Sambucus mexicana</i>	Elderberry
	<i>Cornus occidentalis</i>	Red Dogwood
	<i>Heteromeles arbutifolia</i>	Toyon
	<i>Cercis occidentalis</i>	Western Redbud
	<i>Arctostaphylos</i>	Manzanita
	<i>Arctostaphylos densiflora</i>	Howard McMin Manzanita

Shrubs

	Botanical Name	Common Name
Planted on Existing Campus	<i>Abelia x grandiflora</i> 'Edward Goucher'	Glossy Abelia 'Edward Goucher'
	<i>Arbutus unedo</i> 'Compacta'	Dwarf strawberry Tree
	<i>Arctostaphylos densiflora</i> 'White Lanterns'	White Lantern Manzanita
	<i>Baccharis pilularis</i>	Coyote Brush
	<i>Camellia sasanqua</i>	Sasanqua Camellia
	<i>Carpenteria californica</i>	Bush Anemone
	<i>Cistus hybridus</i>	White Rockrose
	<i>Cistus salvifolius</i>	Sage Leaf Rockrose
	<i>Cistus x skanbergii</i>	Rockrose
	<i>Cistus sunset</i>	Magenta Rockrose
	<i>Ceanothus</i> 'Julia Phelps'	Small Leaf Mountain Lilac 'Julia Phelps'
	<i>Clytostoma callistegioides</i>	Lavender Trumpet Vine
	<i>Dodonea viscosa</i>	Hopbush
	<i>Escallonia</i> sps.	Escallonia
	<i>Lavandula angustifolia</i>	Lavender
	<i>Lavatera thuringiaca</i>	Tree Mallow
	<i>Ligustrum japonicum</i> 'Texanum'	Waxleaf Privet
	<i>Mahonia</i> 'Compacta'	Oregon Grape 'Compacta'
	<i>Myrtus communis</i> 'Buxifolia'	True Myrtle
	<i>Osmanthus fragrans</i>	Sweet Olive
	<i>Raphiolepis indica</i> 'Balerina'	Raphiolepis 'Balerina'
	<i>Rhamnus californica</i> 'Eve Case'	Coffeeberry 'Eve Case'
	<i>Rhododendron occidentale</i>	Western Azalea
	<i>Ribes viburnifolium</i>	Catalina Perfume
	<i>Ribes speciosum</i>	Gooseberry (fuschia-flowering)
	<i>Rosa gymnocarpa</i>	Wood Rose
	<i>Rosa</i> 'Red Ribbons'	Red Ribbons Rose
	<i>Rosmarinus</i> 'Blue Spires'	Blue Spires Rosemary
	<i>Salvia greggii</i>	Autumn Sage
	<i>Salvia leucophylla</i>	Purple Sage
	<i>Viburnum</i> 'Davidii'	David Viburnum
	<i>Westringia fruticosa</i> 'Wynyabbie Gem'	Coastal Rosemary 'Wynyabbie Gem'
	<i>Woodwardia fimbriata</i>	Giant Chain Fern
Suggested Future Candidates	<i>Arctostaphylos manzanita</i>	Parry Manzanita
	<i>Heteromeles arbutifolia</i>	Toyon
	<i>Rhus Ovata</i>	Sugar Bush
	<i>Asarum caudatum</i>	Wild Giner
	<i>Ribes Viburnifolium</i>	Catalina Currant
	<i>Artemisia douglasiana</i>	Mugwort
	<i>Baccharis viminea</i>	Mule Fat
	<i>Ceanothus</i>	Frosty Blue
	<i>Ceanothus</i>	Joyce Coulter
	<i>Ceanothus</i>	Julia Phelps
	<i>Rosa californica</i>	Wild Rose
	<i>Atriplex lentiformis</i>	Quail bush
	<i>Cornus stolonifera</i>	Brown Dogwood
	<i>Ceanothus</i>	Yankee Point

Grasses, Sedges, Rushes, Rhizomes

Planted on Existing Campus	Botanical Name	Common Name
	Carex Barberae	Santa Barbara Sedge
	Carex divulsa	Berkeley Sedge
	Carex praegracilis	California Field Sedge
	Festuca maeirei	Maeirei Fescue
	Helictotrichon sempervirens	Blue Oat grass
	Iris douglasianna	Douglas Iris
	Juncus xiphiodes	Juncus
	Leymus condensatus 'Canyon prince'	Wild Rye 'Canyon Prince'
	Muhlenbergia rigens	Deer Grass
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass
	Stipa gigantea	Giant Feather Grass
	Stipa pulchra	Purple Needle grass
Suggested Future Candidate	Phragmites communis	Common Reed

Groundcovers

	Botanical Name	Common Name
Planted on Existing Campus	Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita
	Arctostaphylos 'Pacific Mist'	Pacific Mist?
	Ceanothus	California lilac
	Hypericum calycium	Creeping St. Johnswort
	Mahonia repens	Trailing Barberry
	Rosmarinus officinalis 'Collingwood Ingram'	Rosemary 'Collingwood Ingram'
Suggested Future Candidate	Penstemon heterophyllus	Blue Beder Penstemon

Perennials

Planted on Existing Campus	Botanical Name	Common Name
	<i>Achillea millefolium</i>	Yarrow
	<i>Eschscholzia californica</i>	California Poppy
	<i>Heuchera 'Wendy'</i>	Wendy Coral Bells
	<i>Penstemon centranthifolius</i>	Scarlet Bugler
	<i>Penstemon heterophyllus 'Blue Springs'</i>	Foothill Penstemon
	<i>Salvia greggii 'Desert Blaze'</i>	Autumn Sage "Desert Blaze"
	<i>Salvia clevelandii</i> or <i>sonomensis</i> hybrid	Mrs Beard creeping sage
	<i>Eriogonum umbellatum 'Shasta'</i>	Shasta sulfur flower buckwheat
	<i>Eriogonum wrightii</i>	Wright's buckwheat
	<i>Eriogonum fasciculatum foliolosum</i>	California buckwheat

Vines

Planted on Existing Campus	Botanical Name	Common Name
	Clematis Armandi	Evergreen Clematis
	Clytostoma Callistegioides	Lavender Trumpet Vine
	Distictis Buccinatoria	Blood Red Trumpet Vine
	Lonicera	Honeysuckle
	Rosa Banksiae	Lady Banks Rose

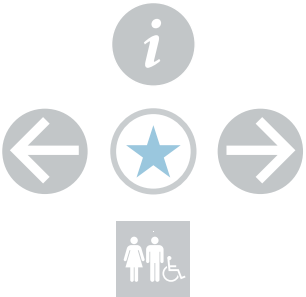
APPENDIX 12 – UC MERCED SIGNAGE STANDARDS

(See attached.)

See Section 3.8.13.3 of the Technical Requirements for specific exceptions to the requirements of this Appendix 12. Any exceptions or deviations to the requirements of this Appendix 12 that are not permitted pursuant to Section 3.8.13.3 of the Technical Requirements require prior approval of the Owner.

— UNIVERSITY OF CALIFORNIA —
UCMERCED

S I G N P A C K A G E



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 1A: ROOM SIGN



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

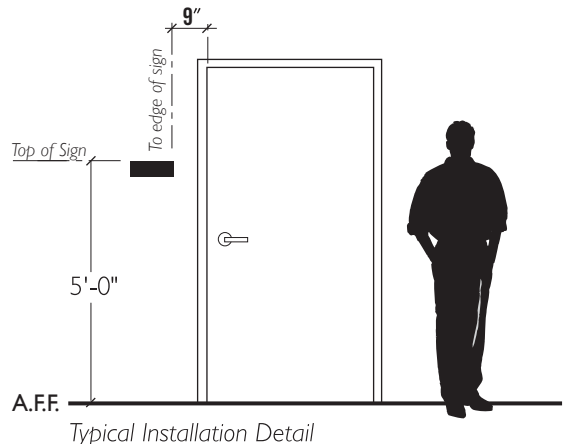
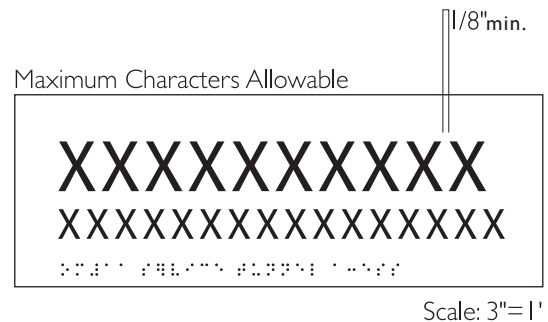
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed



SIGN TYPE 1A: ROOM SIGN

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 2: ROOM INSERT



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver
Graphics: Benj. I Moore - Branchport Brown

SCALE

half

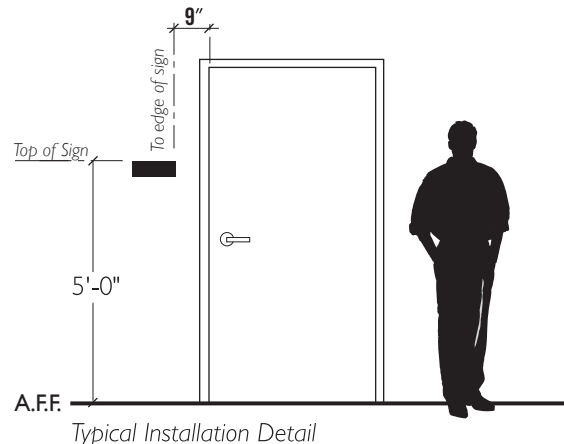
FONT

Univers 57 Condensed

Maximum Characters Allowable



Scale: 3"=1'

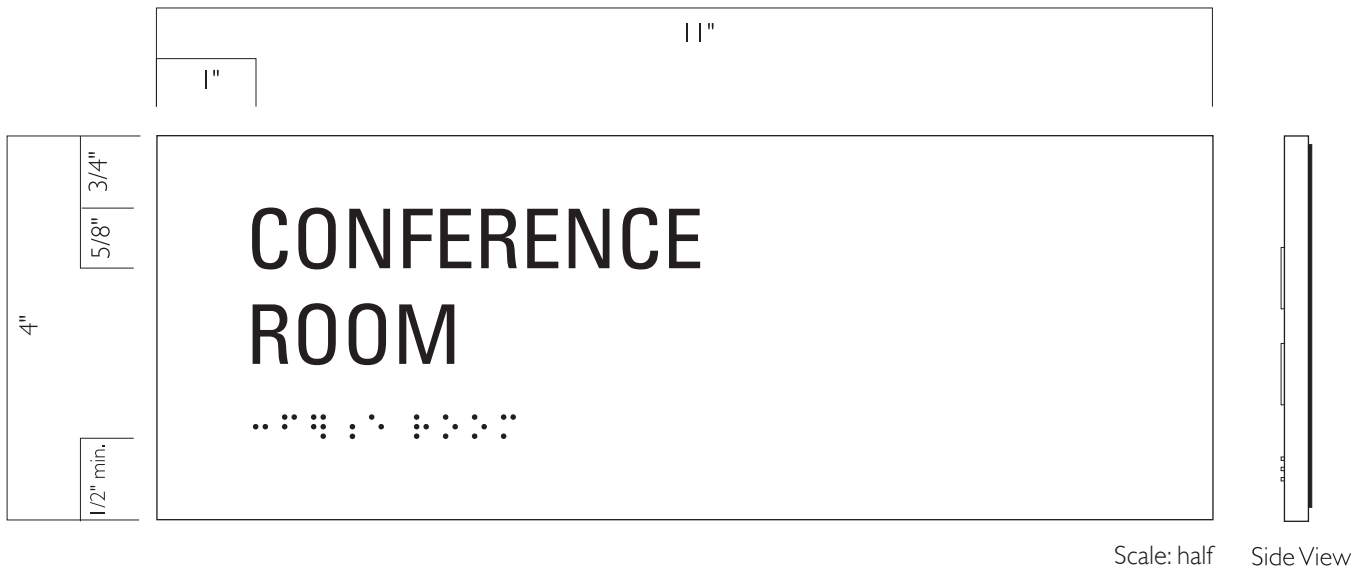


SIGN TYPE 2: ROOM INSERT

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 3: ROOM SIGN



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

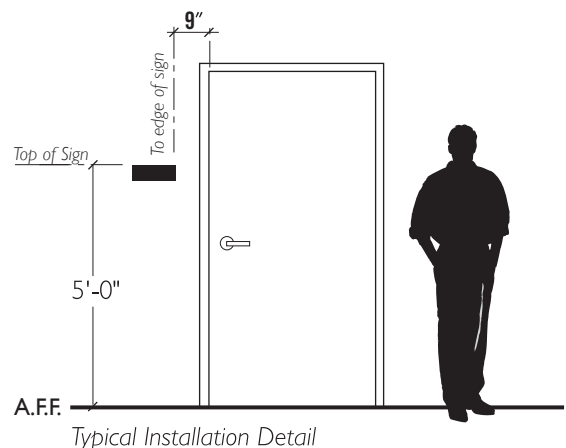
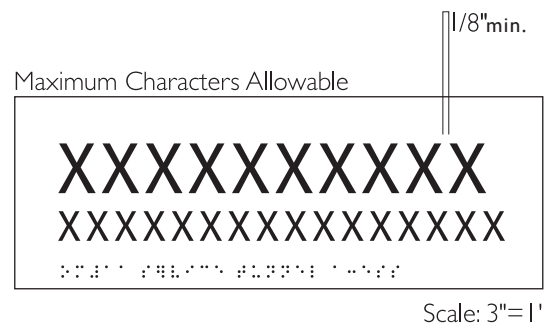
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed

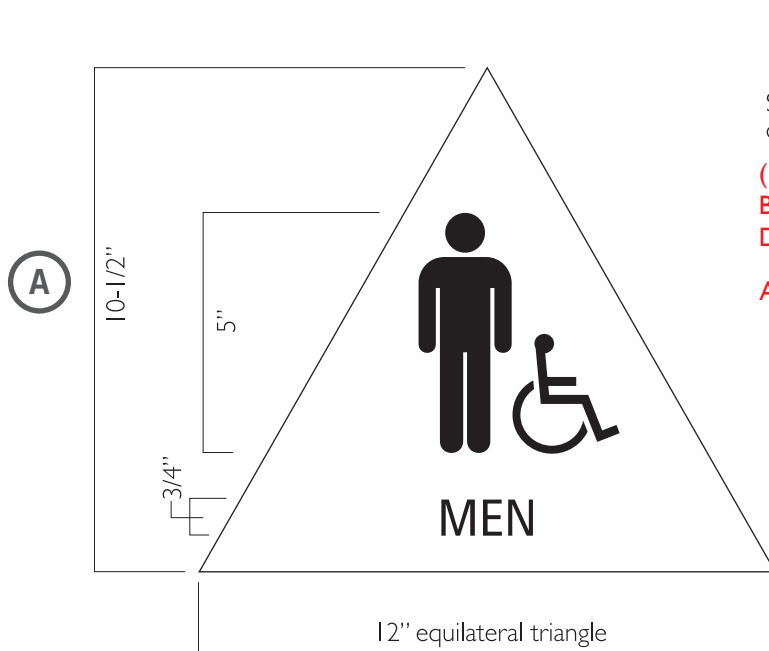


SIGN TYPE 3: ROOM SIGN

UC MERCED INTERIOR SIGNAGE PACKAGE

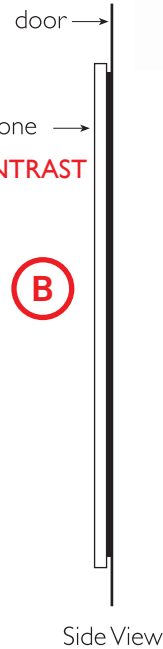
UC MERCED

SIGN TYPE 4: MEN, WOMEN

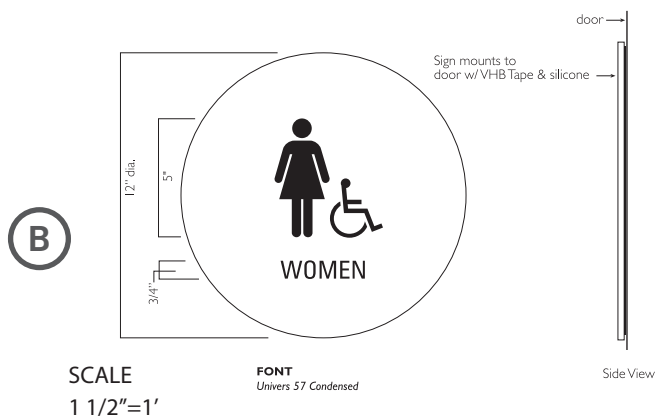


Sign mounts to door w/ VHB Tape & silicone
(MUST HAVE 70% CONTRAST BETWEEN SIGN AND DOOR COLOR)

Applies to signs



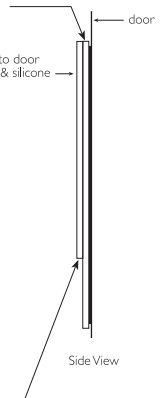
SCALE
3"=1'



SCALE
1 1/2"=1'

FONT
Univers 57 Condensed

Sign mounts to door w/ VHB Tape & Silicone
(Must have 70% contrast between sign and door color)



PROJECT

UC Merced

JOB

DESCRIPTION

1/4" thick NG acrylic triangle w/ subsurface applied paint and vinyl graphics laminated to 1/4" thick NG acrylic circle w/ subsurface paint.

COLORS

Bkgd.: Dark Rhein Silver

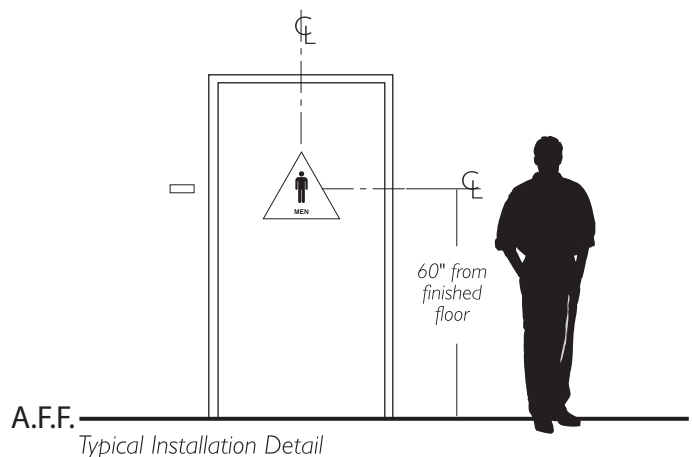
Graphics: Benj. / Moore - Branchport Brown

SCALE

3"=1'

FONT

Univers 57 Condensed

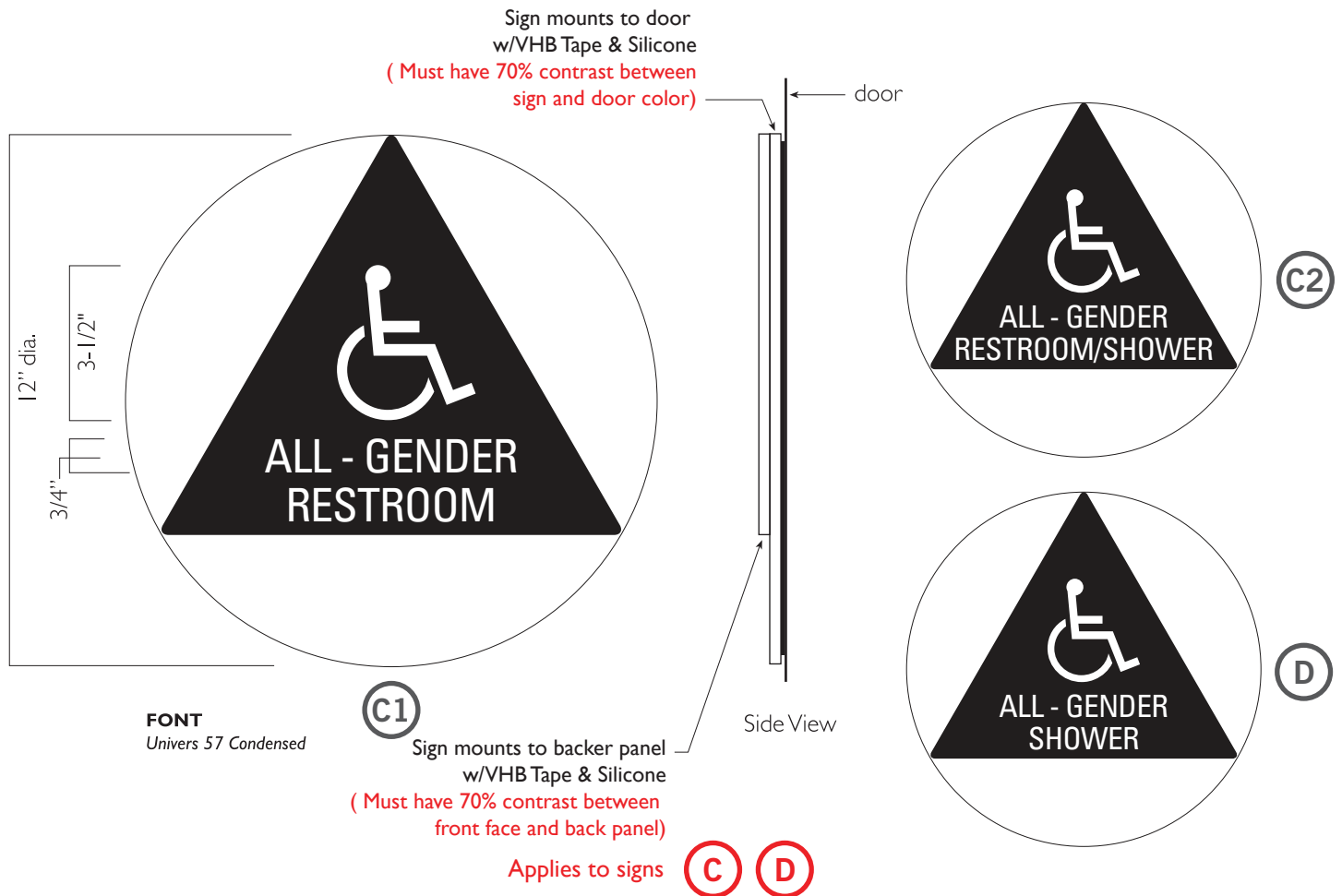


SIGN TYPE 4: MEN, WOMEN

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 4C1, 4C2, 4D: ALL GENDER



PROJECT

UC Merced

JOB

DESCRIPTION

1/4" thick NG acrylic triangle w/ subsurface applied paint and vinyl graphics laminated to 1/4" thick NG acrylic circle w/ subsurface paint.

COLORS

Bkgd.: Dark Rhein Silver

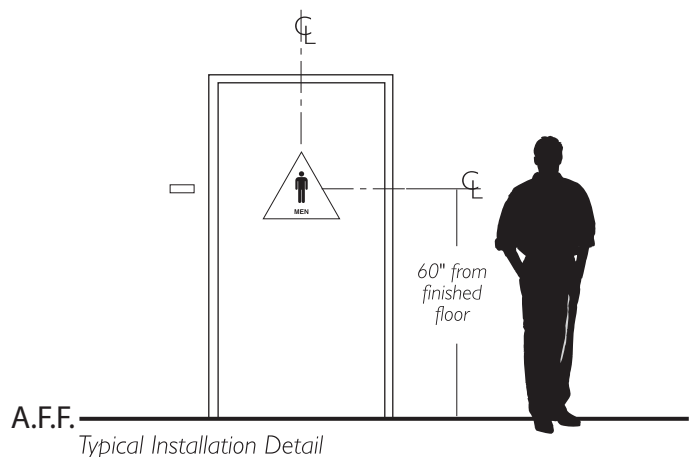
Graphics: Benj. / Moore - Branchport Brown

SCALE

3"=1'

FONT

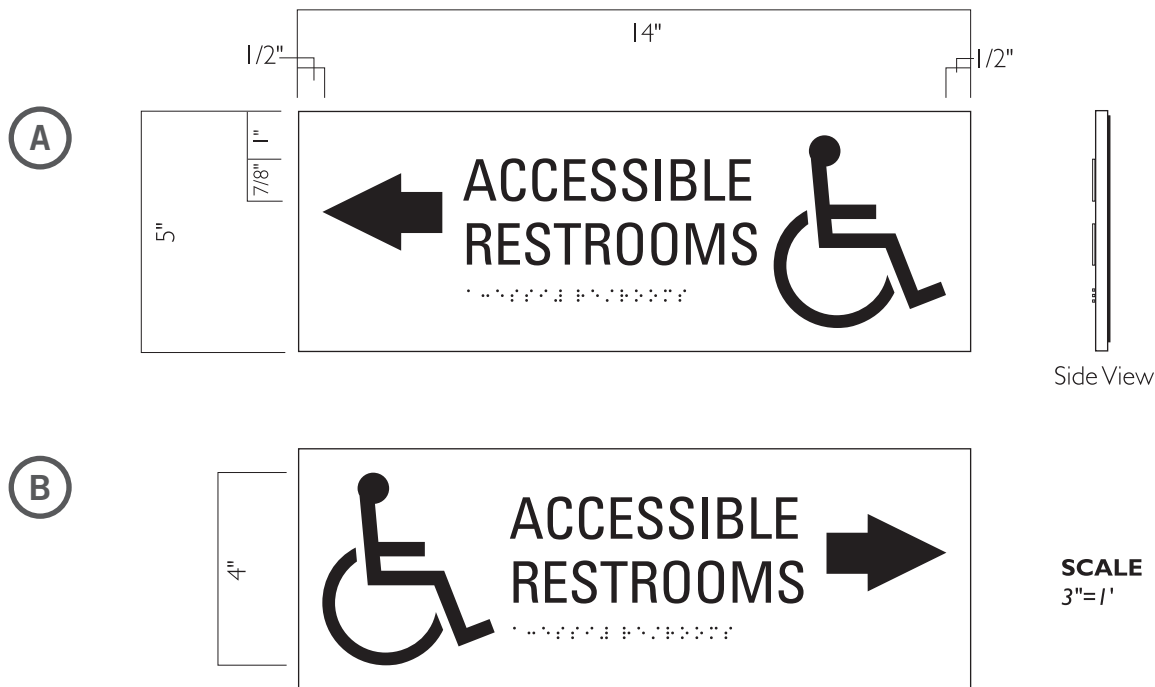
Univers 57 Condensed



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 5: ACCESSIBLE DIRECTIONAL

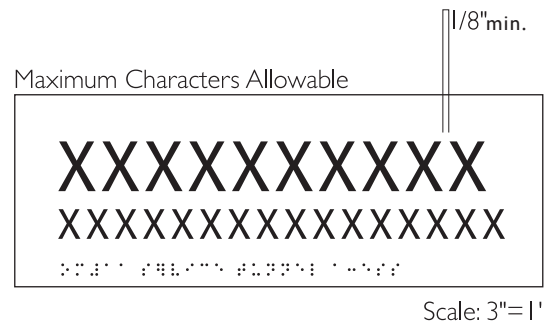


Note: Client to provide count of right and left arrows.

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.



PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

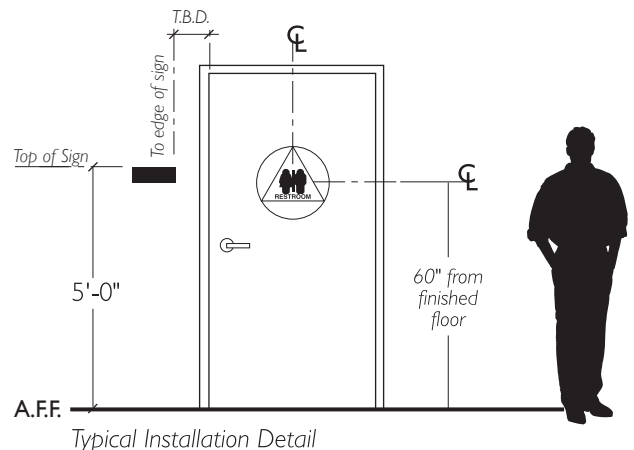
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed



SIGN TYPE 5: ACCESSIBLE DIRECTIONAL

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 6: MEN, WOMEN, UNISEX

(RESTROOM WALL)



(C)

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

Graphics: Benj. / Moore - Branchport Brown

SCALE

Full

FONT

Univers 57 Condensed



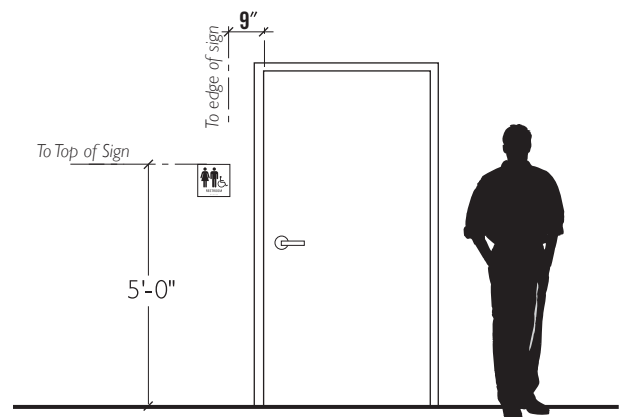
SCALE

3"=1'

48" MIN. TO BOTTOM OF BRILLE

60" MAX. TO BOTTOM OF RAISED LETTERING

F.F.



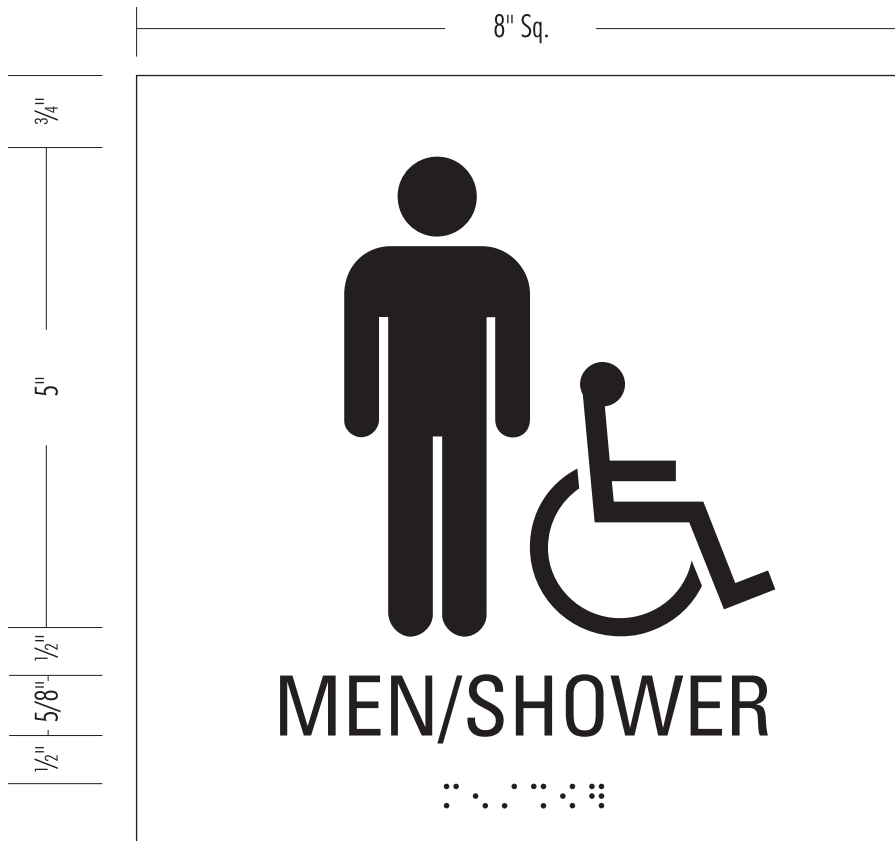
A.F.F. Typical Installation Detail

SIGN TYPE 6: INTERIOR PHOTOPOLYMER

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 6A: SHOWER



Scale: half



Scale: 3" = 1'

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

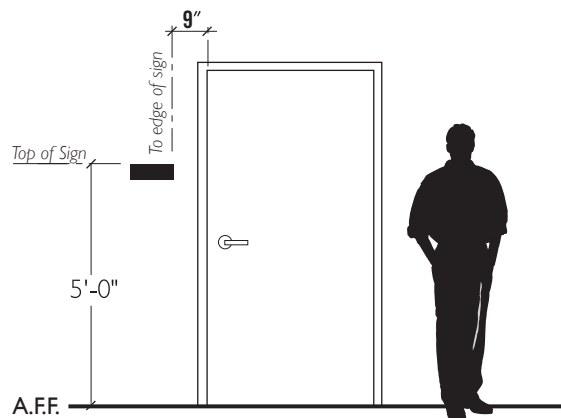
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed



Typical Installation Detail

SIGN TYPE 6A: SHOWER

UC MERCED INTERIOR SIGNAGE PACKAGE

UC Merced

Sign Type 6B - Flag Mount Restroom



QTY: 3

PROJECT

UC Merced

JOB # 3030

DESCRIPTION

1/8" thick acrylic panel painted both sides with vinyl graphics.
Mounted to interior wall standard "T" bracket (PN72) with
satin finish and 4 countersunk holes for mounting by others.

COLORS

Background: Dark Rhein Silver
Copy: Dark Mahogany Brown Vinyl

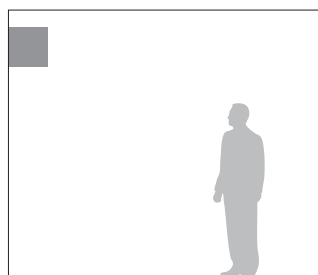
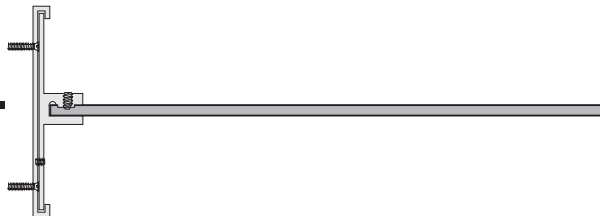
SCALE

HALF

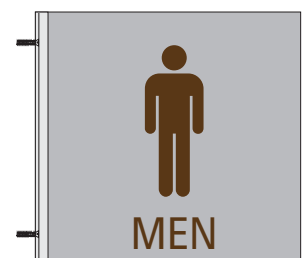
DATE

09.18.14

Drawn by: Matthew Zan



Scale Reference



Ellis&Ellis
SIGN SYSTEMS

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 6C1, 6C2, 6D: ALL GENDER

(RESTROOM WALL)



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof
hardware, pin TORX driver bit. Mounting shall be weather proof
in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

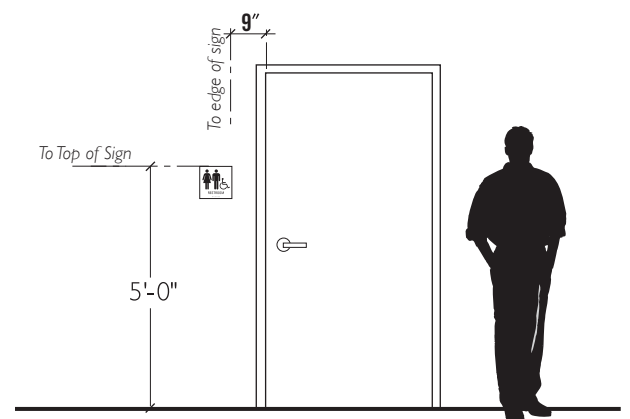
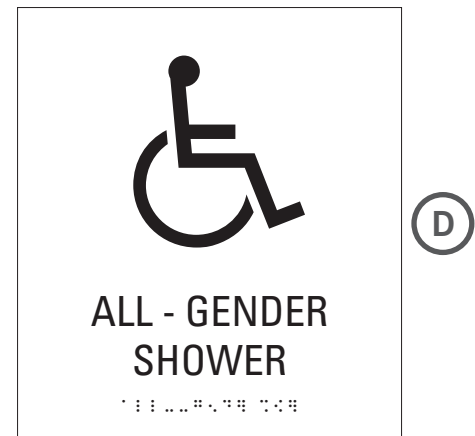
Graphics: Benj. / Moore - Branchport Brown

SCALE

Full

FONT

Univers 57 Condensed



A.F.F. Typical Installation Detail

SIGN TYPE 6: INTERIOR PHOTOPOLYMER

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 7: ASSISTED LISTENING



Scale: 3" = 1'

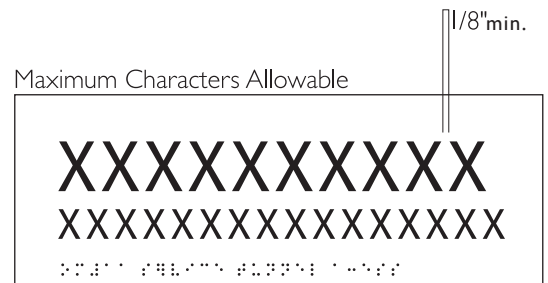


Side View

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.



Scale: 3" = 1'

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

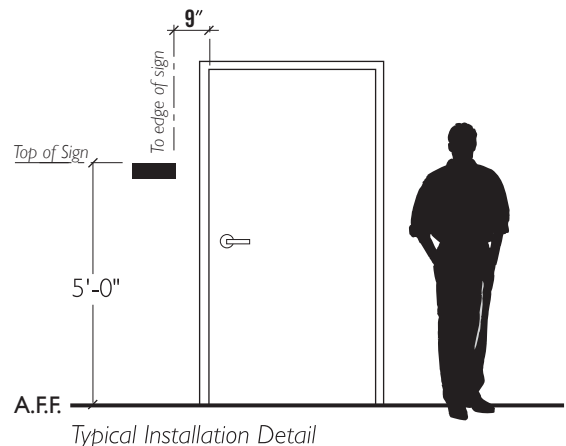
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed

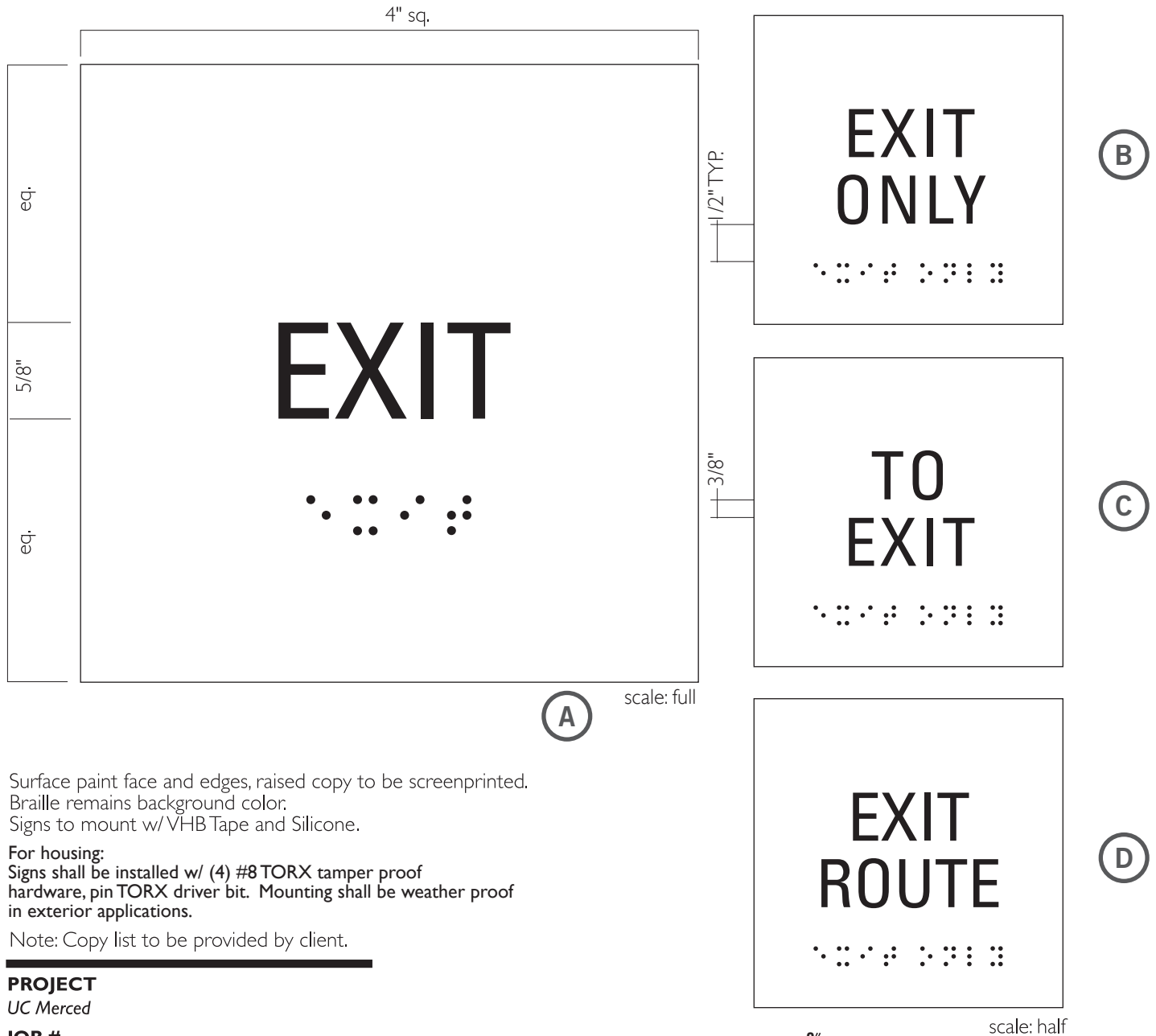


SIGN TYPE 7: ASSISTED LISTENING

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 8: EXIT / EXIT ROUTE



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

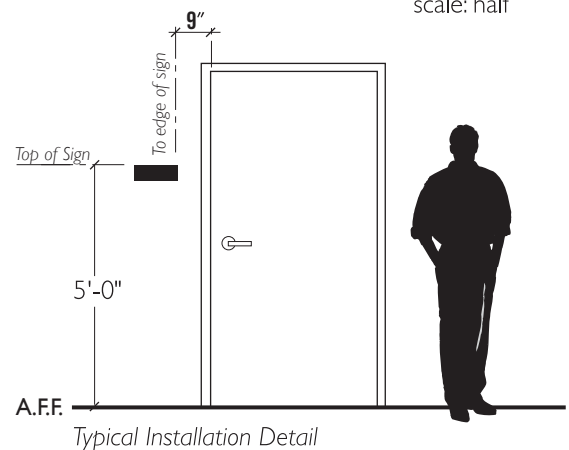
Graphics: Benj. I Moore - Branchport Brown

SCALE

half

FONT

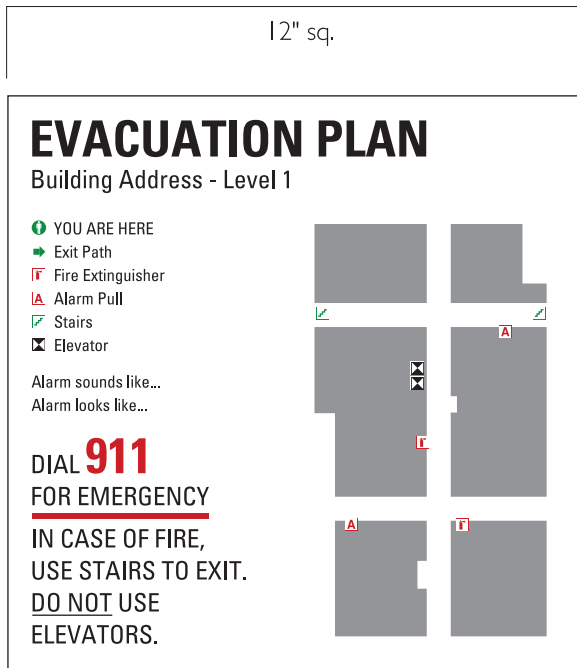
Univers 57 Condensed



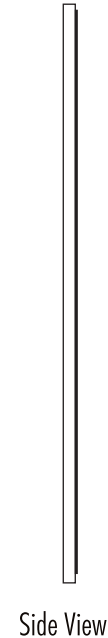
UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 9: EVAC MAP



SCALE
3"=1'



Signs to mount w/VHB tape and Silicone.

Note: Client to supply usable vector artwork or floorplans with all required information.

PROJECT

UC Merced

JOB

DESCRIPTION

1/4" thick Non-glare acrylic w/ subsurface applied digital print on vinyl.

COLORS

BKGD.:TBD

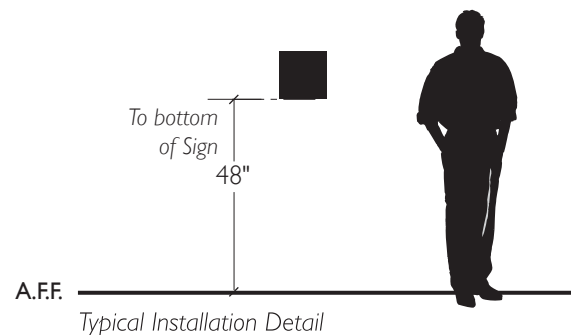
GRAPHICS:TBD

SCALE

3"=1'

FONT

Univers 57 Condensed

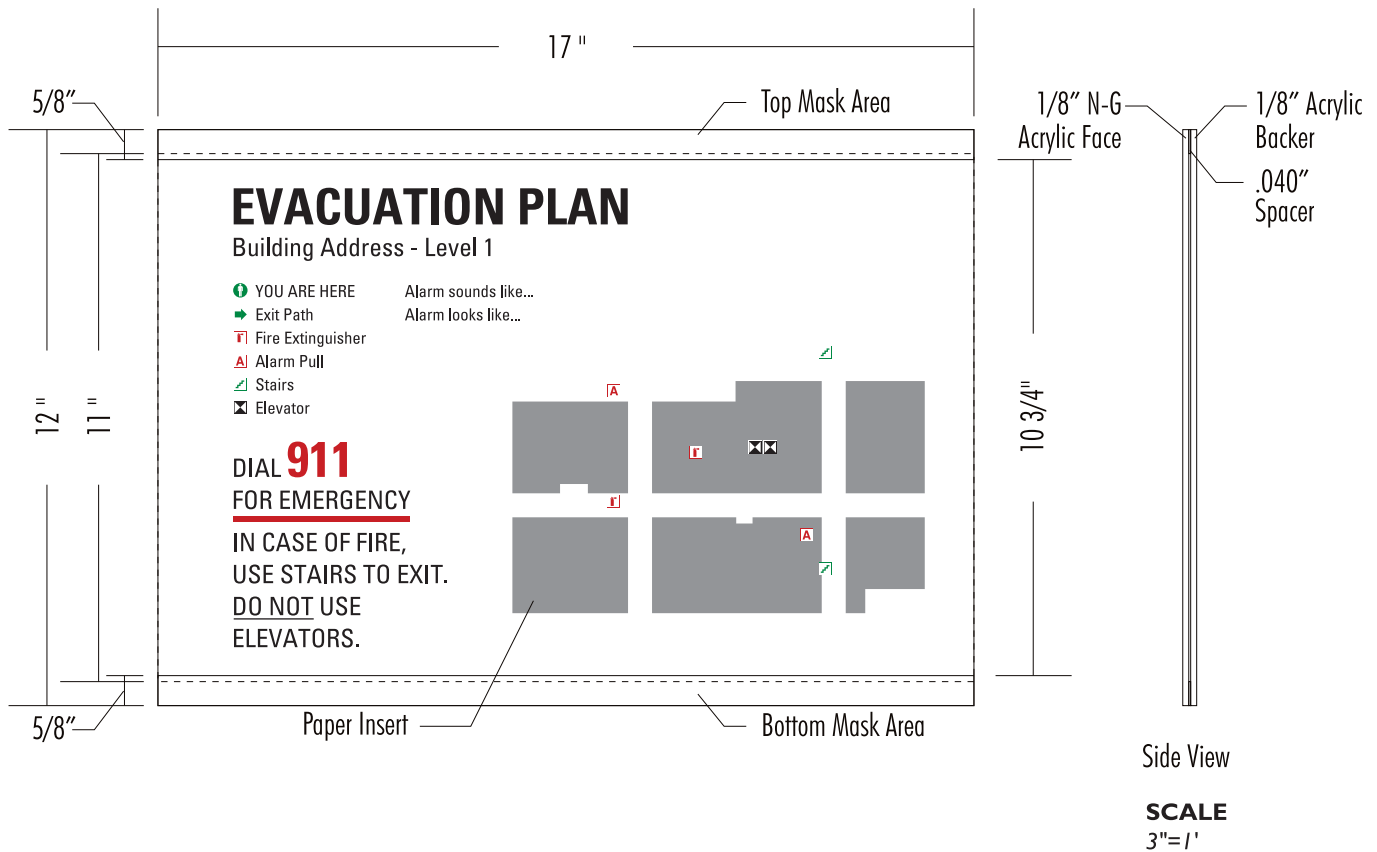


SIGN TYPE 9: EVAC MAP

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 9A: EVAC INSERT



For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

PROJECT

UC Merced

JOB

DESCRIPTION

1/8" thick Non-glare acrylic w/ painted masks on second surface. w/ .040" spacer to allow insert.
1/8" Acrylic backer painted second surface.
Mounted w/ VHB tape and Silicone Adhesive.

COLORS

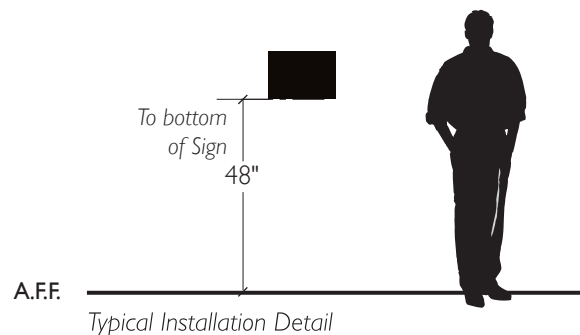
Bkgd.: Dark Rhein Silver

SCALE

3"=1'

FONT

Univers 57 Condensed



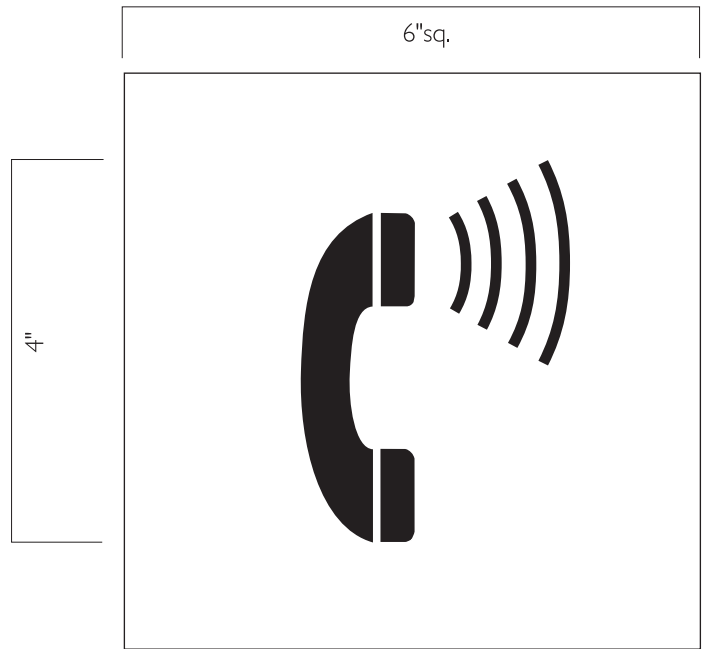
SIGN TYPE 9A: EVAC INSERT

SIGN TYPE 10

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 11



Scale: half



Side View

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

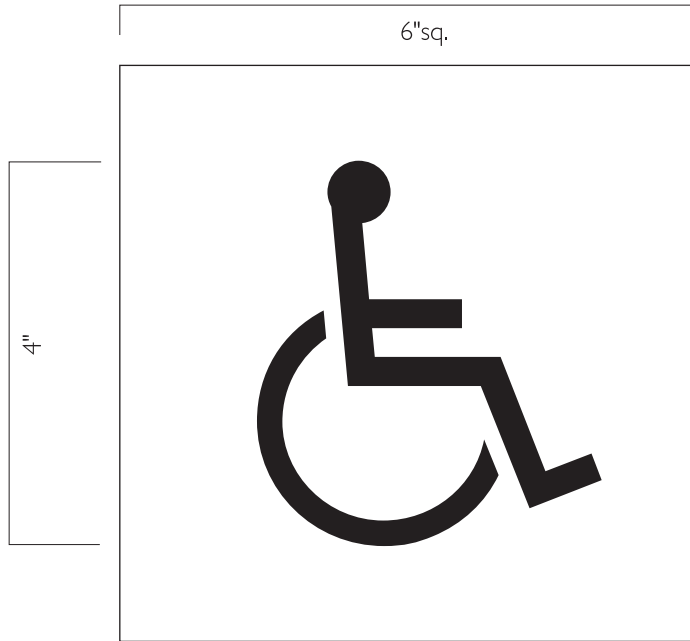
Univers 57 Condensed

SIGN TYPE 11

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 12: HC ACCESSIBLE



Scale: half



Side View

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed

SIGN TYPE 12: HC ACCESSIBLE

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 13



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Scale: 3"=1'

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

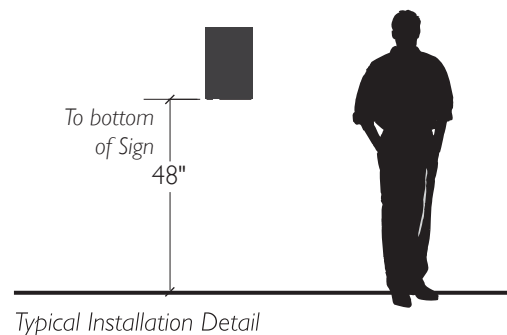
Graphics: Benj. / Moore - Branchport Brown

SCALE

3"=1'

FONT

Univers 57 Condensed



SIGN TYPE 13

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 14



Scale: half

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

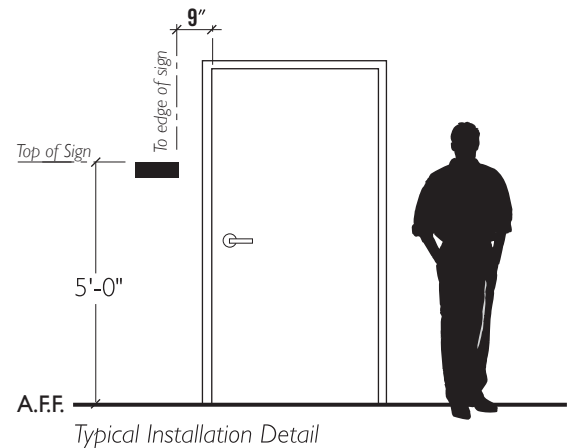
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

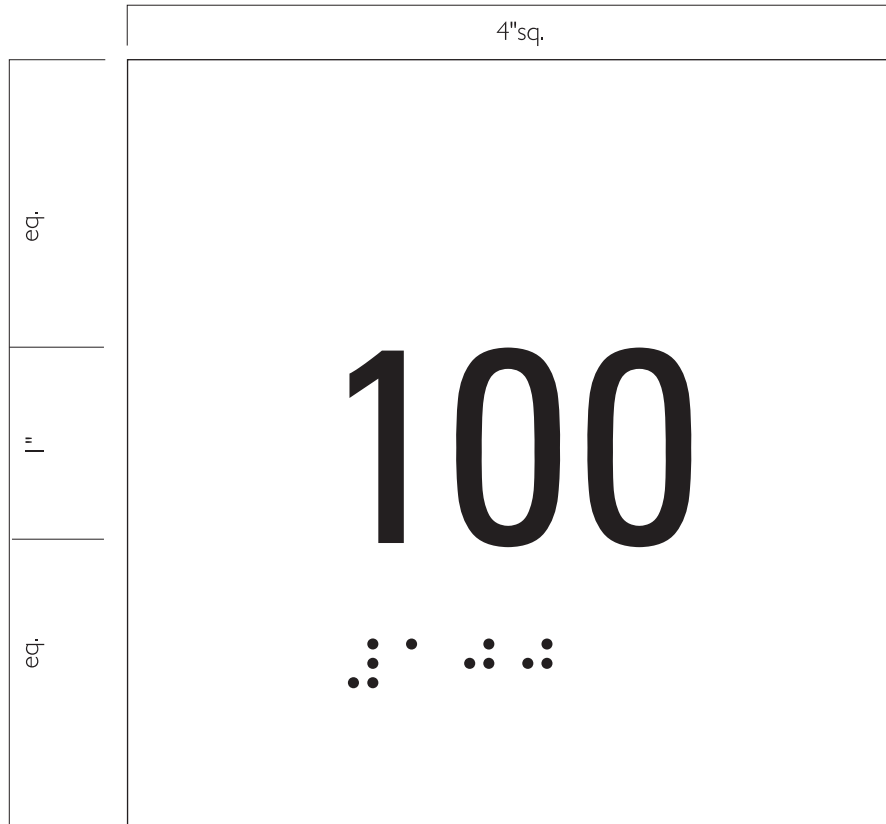
Univers 57 Condensed



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 15: UNIT SIGN



Scale: full



Side View

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

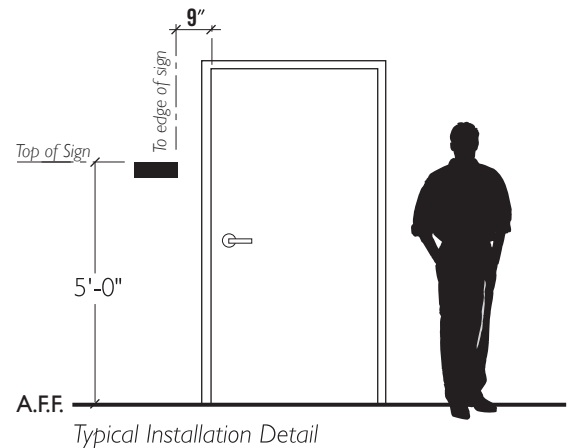
Graphics: Benj. / Moore - Branchport Brown

SCALE

Full

FONT

Univers 57 Condensed

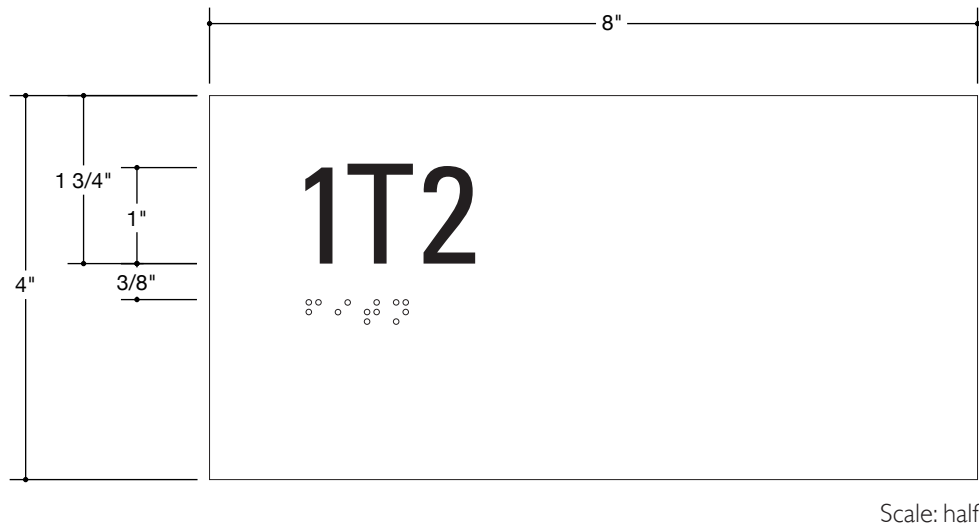


SIGN TYPE 15: UNIT SIGN

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 15A: ROOM SIGN



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

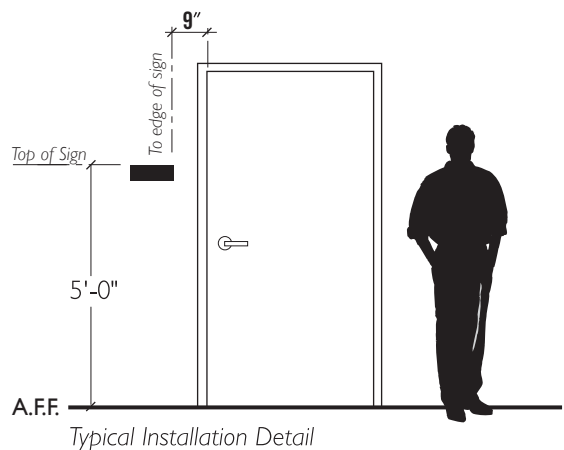
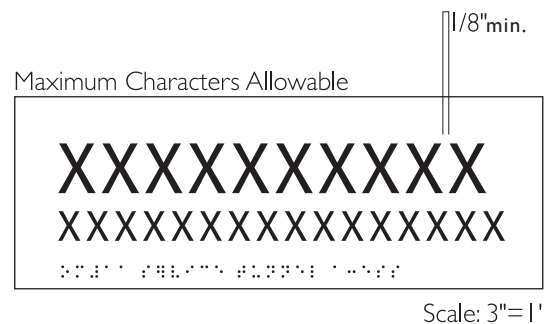
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed

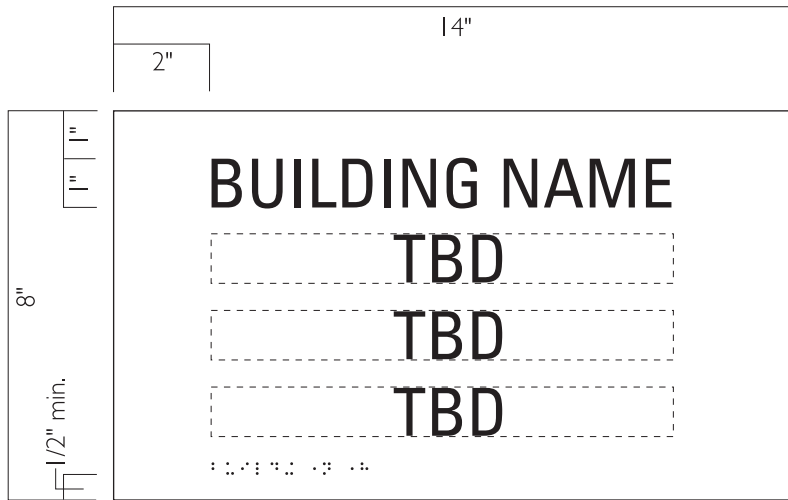


SIGN TYPE 15A: ROOM SIGN

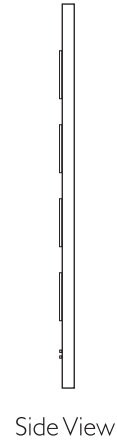
UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 16



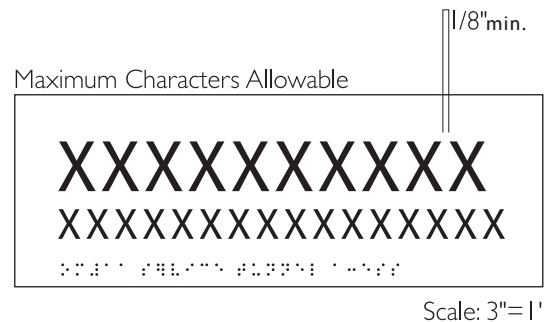
Scale: 3"=1'



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.



Scale: 3"=1'

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

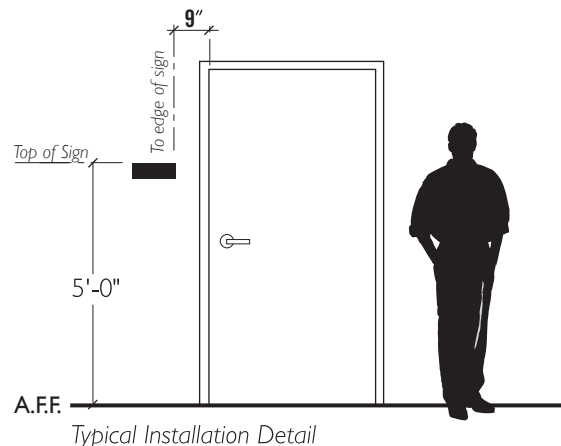
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed

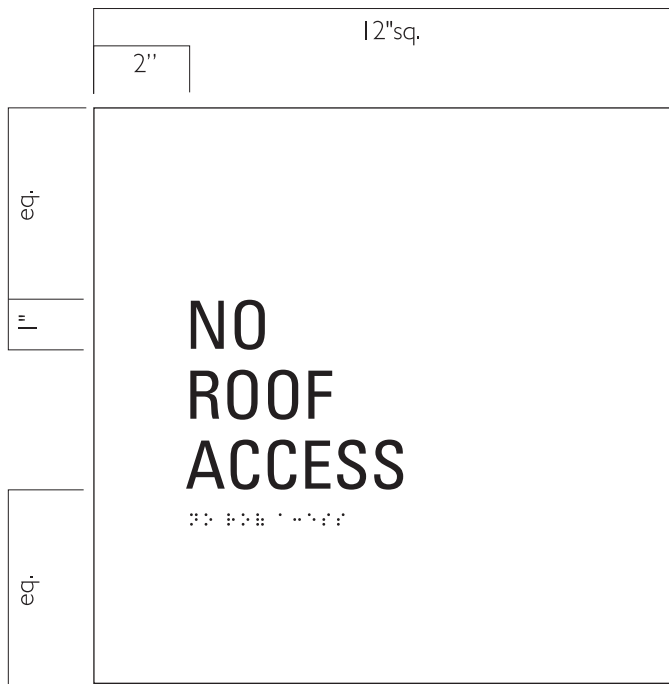


SIGN TYPE 16

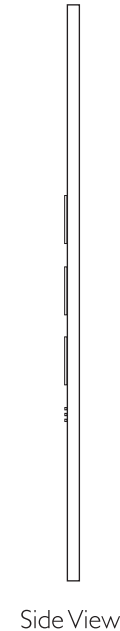
UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 17



Scale: 3"=1'



Side View

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

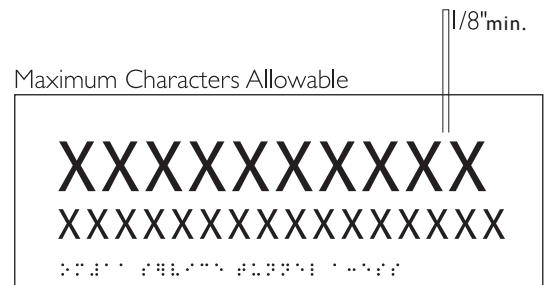
Graphics: Benj. / Moore - Branchport Brown

SCALE

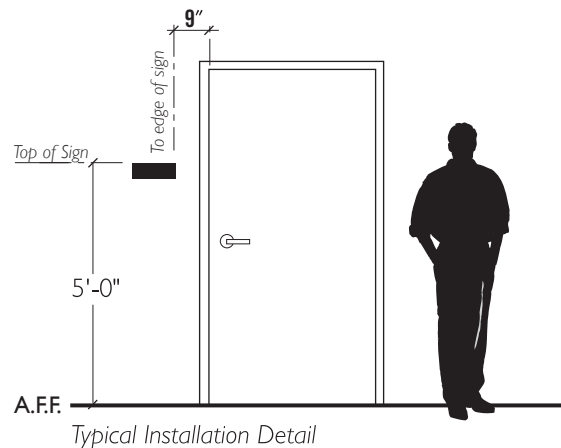
half

FONT

Univers 57 Condensed



Scale: 3"=1'

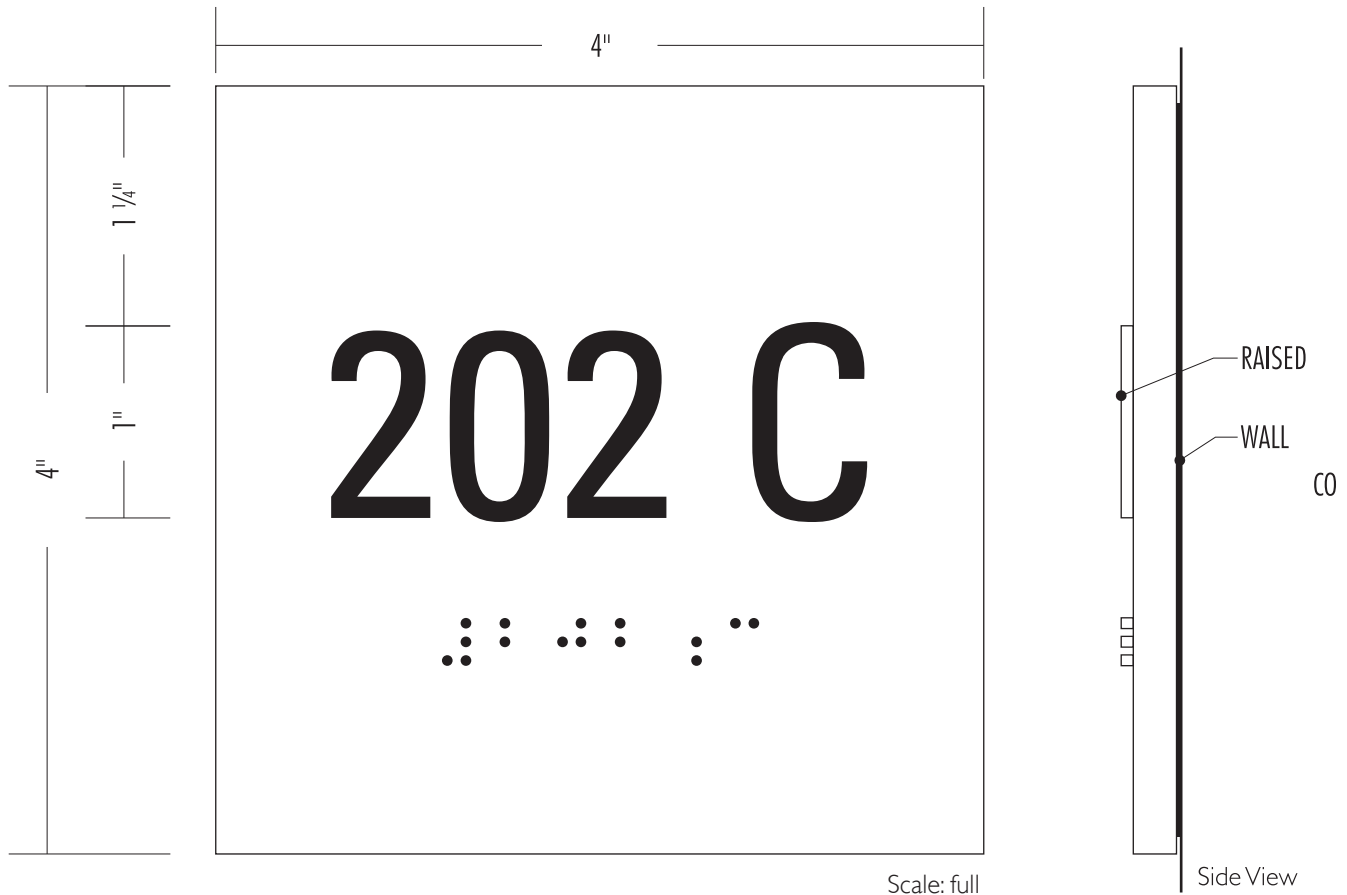


Typical Installation Detail

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 18: HOUSING ROOM ID



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

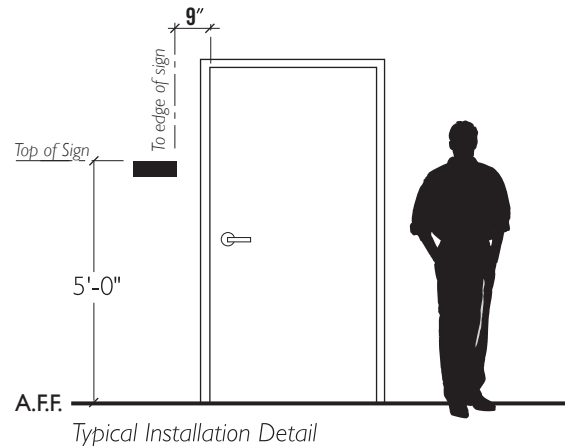
Graphics: Benj. I Moore - Branchport Brown

SCALE

Full

FONT

Univers 57 Condensed



SIGN TYPE 18: HOUSING ROOM ID

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 19



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

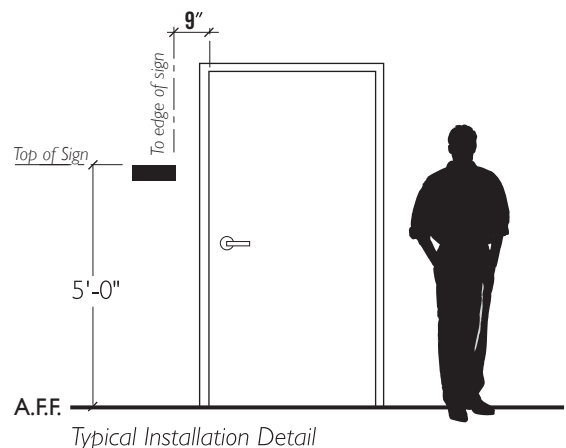
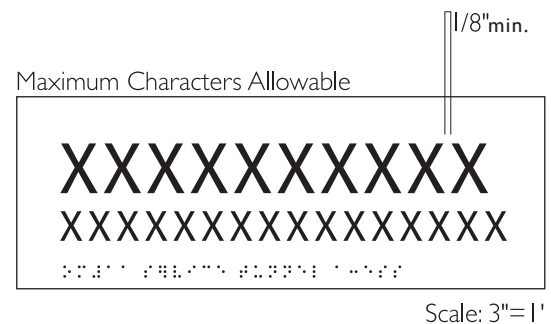
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 20



Signs to mount w/VHB tape and Silicone.

Scale: 3"=1'

Side View

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Client to supply usable vector artwork or floorplan with all required information.

PROJECT

UC Merced

JOB

DESCRIPTION

1/4" thick Non-glare acrylic w/ subsurface applied digital print on vinyl.

COLORS

BKGD.:TBD

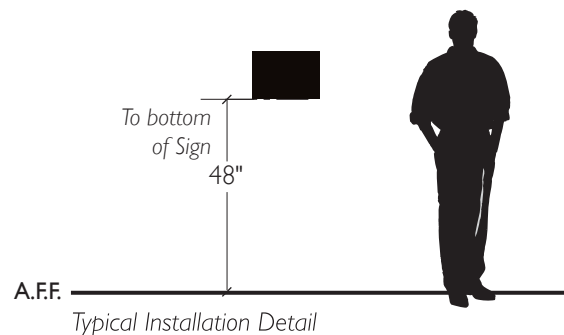
GRAPHICS:TBD

SCALE

3"=1'

FONT

Univers 57 Condensed

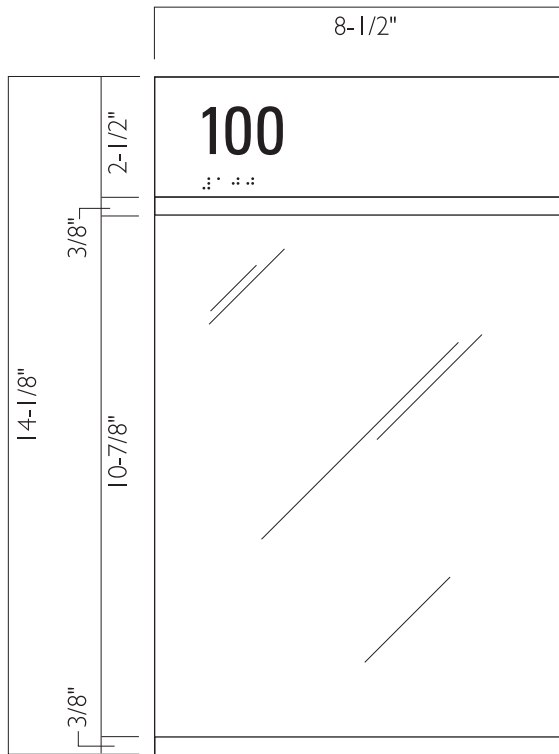


SIGN TYPE 20

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 21



Sign to accept 8-1/2"x11" inserts.

Scale: half



Side View

Header: Surface paint face and edges, raised copy to be screenprinted.

Braille 1/2" below copy typical, remains background color.

Window: Subsurface painted masks on NG acrylic. 040" spacers to accept insert.

Backer: 1/8" thick acrylic painted.

Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be supplied by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/

1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/

1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

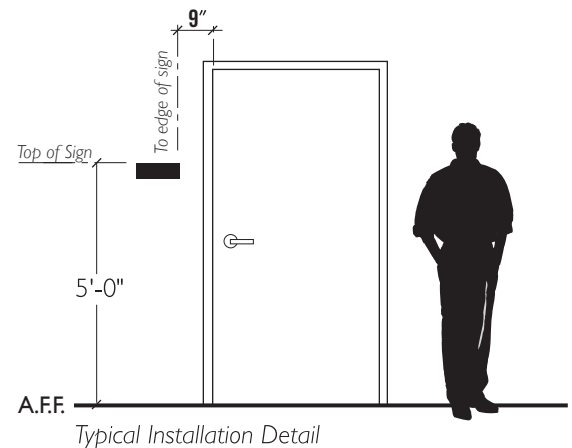
Graphics: Benj. I Moore - Branchport Brown

SCALE

half

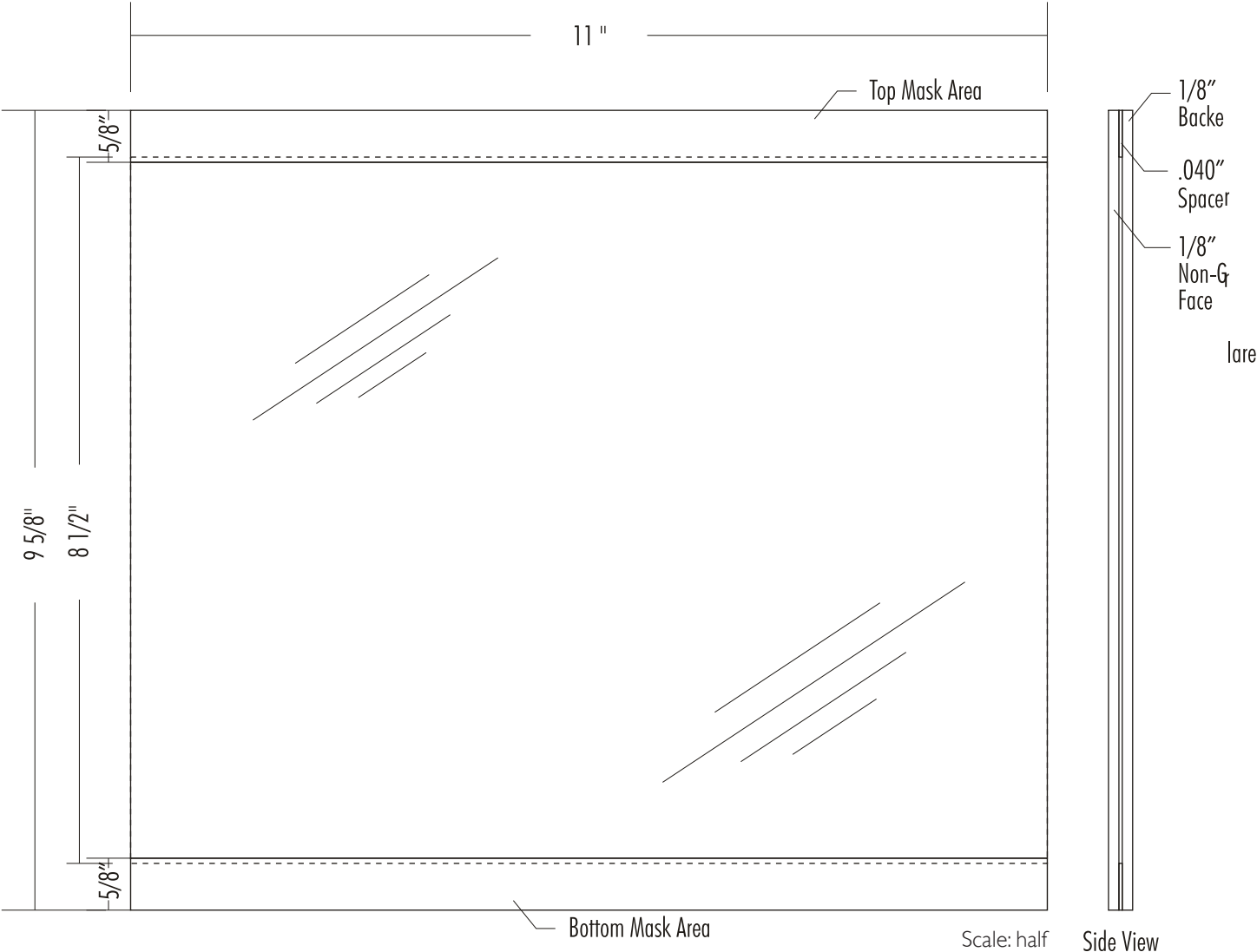
FONT

Univers 57 Condensed



SIGN TYPE 21

UC MERCED INTERIOR SIGNAGE PACKAGE



For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

PROJECT

UC Merced

JOB #

DESCRIPTION

1/8" thick Non-glare acrylic w/ painted masks on second surface. w/ .040" spacer to allow insert.
1/8" Acrylic backer painted second surface.
Mounted w/ VHB tape and Silicone Adhesive.

COLORS

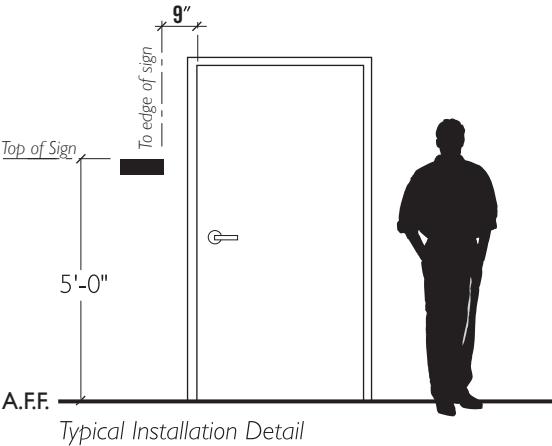
Bkgd.: Dark Rhein Silver

SCALE

half

FONT

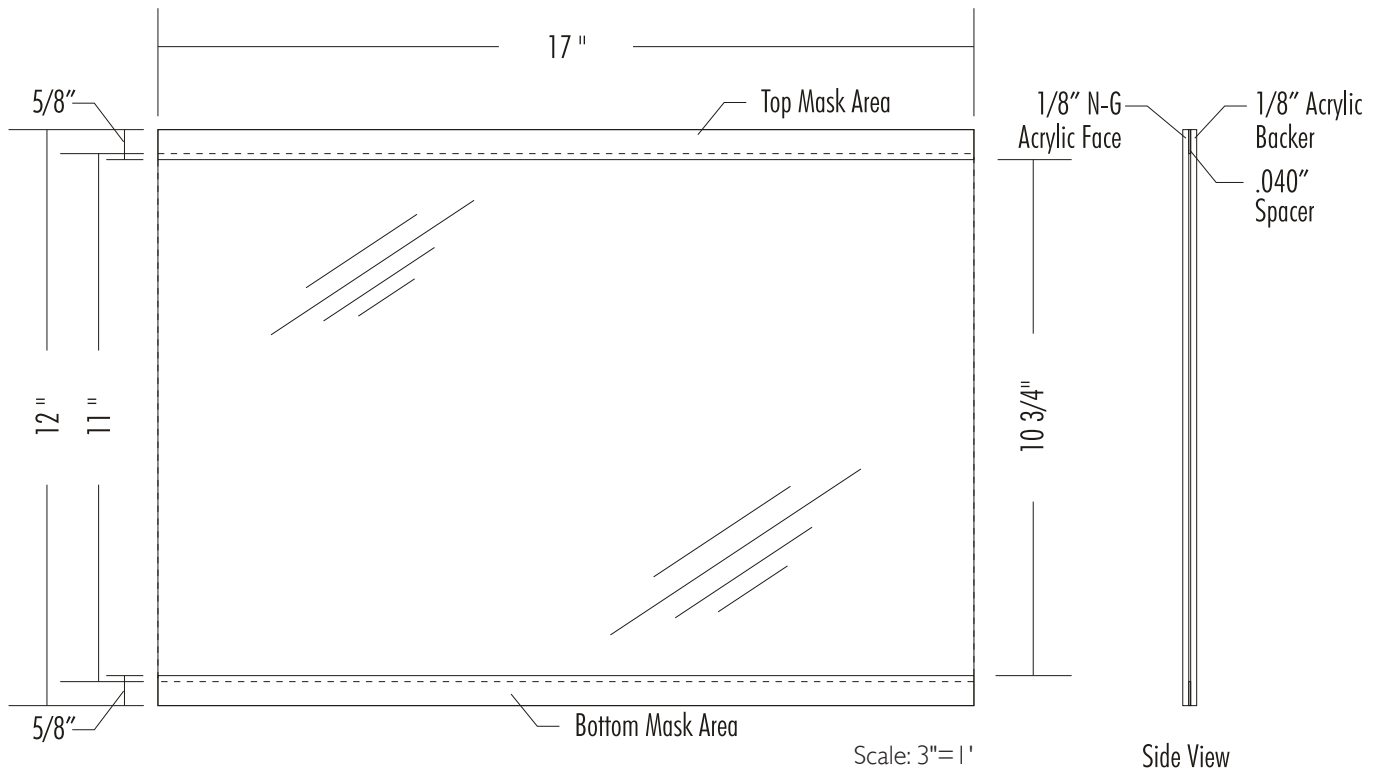
Univers 57 Condensed



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 22B



For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

PROJECT

UC Merced

JOB

DESCRIPTION

1/8" thick Non-glare acrylic w/ painted masks on second surface. w/ .040" spacer to allow insert.
1/8" Acrylic backer painted second surface.
Mounted w/ VHB tape and Silicone Adhesive.

COLORS

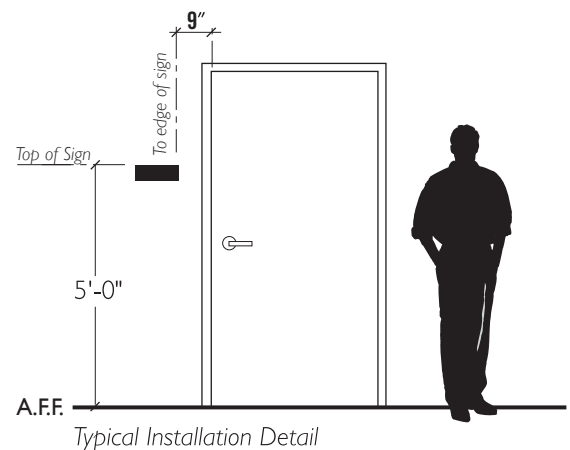
Bkgd.: Dark Rhein Silver

SCALE

3"=1'

FONT

Univers 57 Condensed

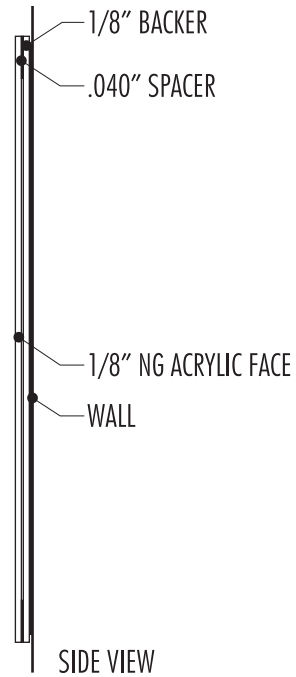
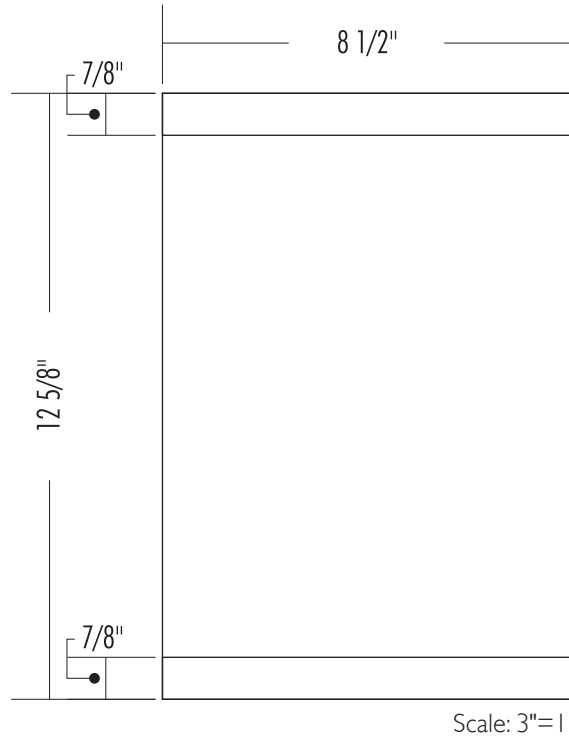


SIGN TYPE 22B

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 22C



For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

PROJECT

UC Merced

JOB

DESCRIPTION

1/8" thick Non-glare acrylic w/ painted masks on second surface. w/ .040" spacer to allow insert.
1/8" Acrylic backer painted second surface.
Mounted w/ VHB tape and Silicone Adhesive.

COLORS

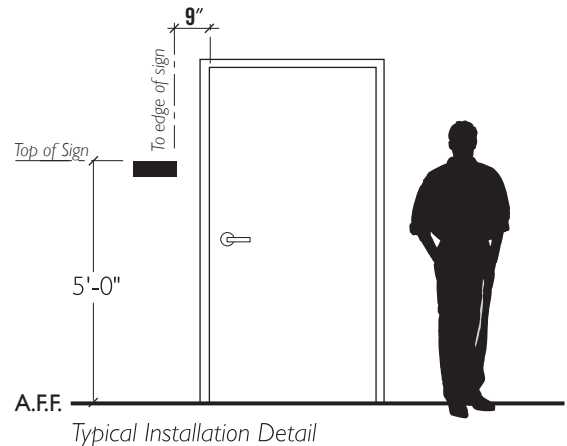
Bkgd.: Dark Rhein Silver

SCALE

3"=1'

FONT

Univers 57 Condensed

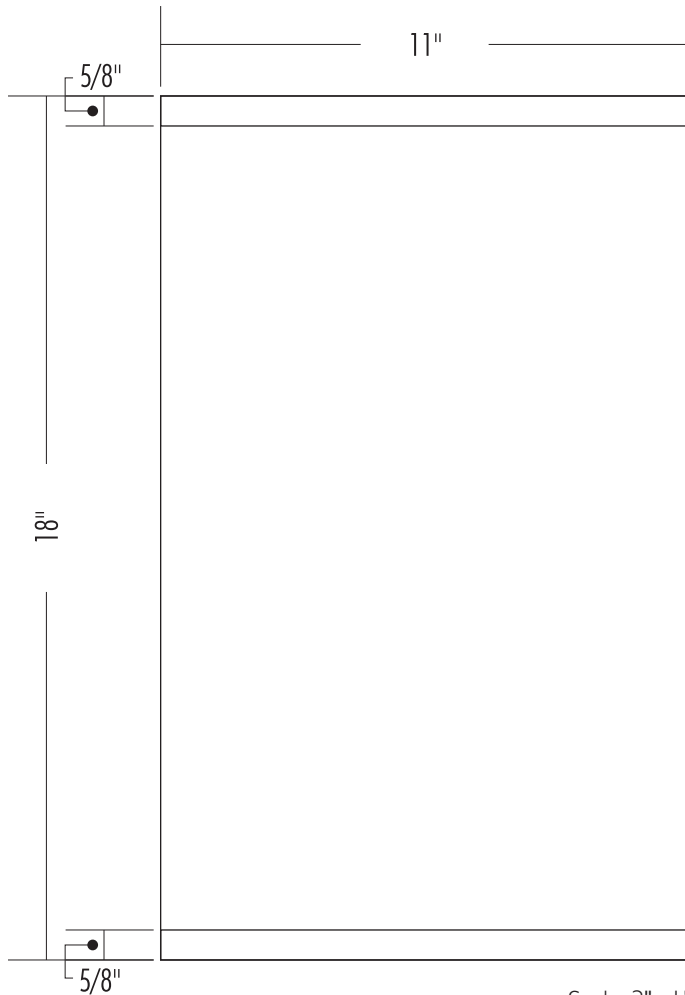


SIGN TYPE 22C

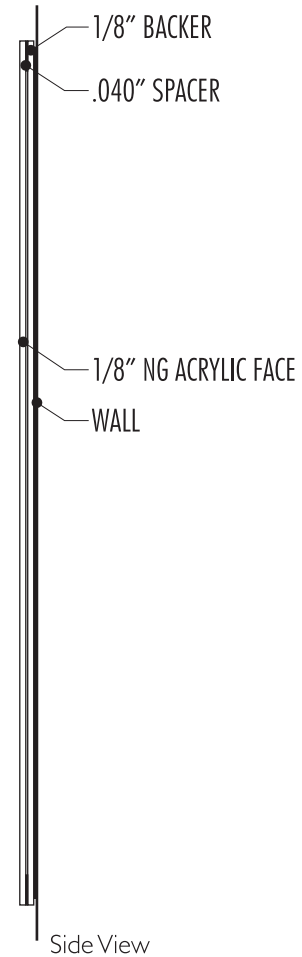
UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 22D



Scale: 3"=1'



For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

PROJECT

UC Merced

JOB

DESCRIPTION

1/8" thick Non-glare acrylic w/ painted masks on second surface. w/ .040" spacer to allow insert.
1/8" Acrylic backer painted second surface.
Mounted w/ VHB tape and Silicone Adhesive.

COLORS

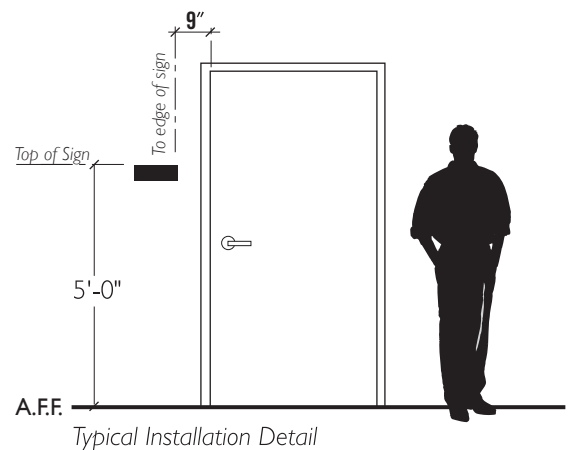
Bkgd.: Dark Rhein Silver

SCALE

3"=1'

FONT

Univers 57 Condensed

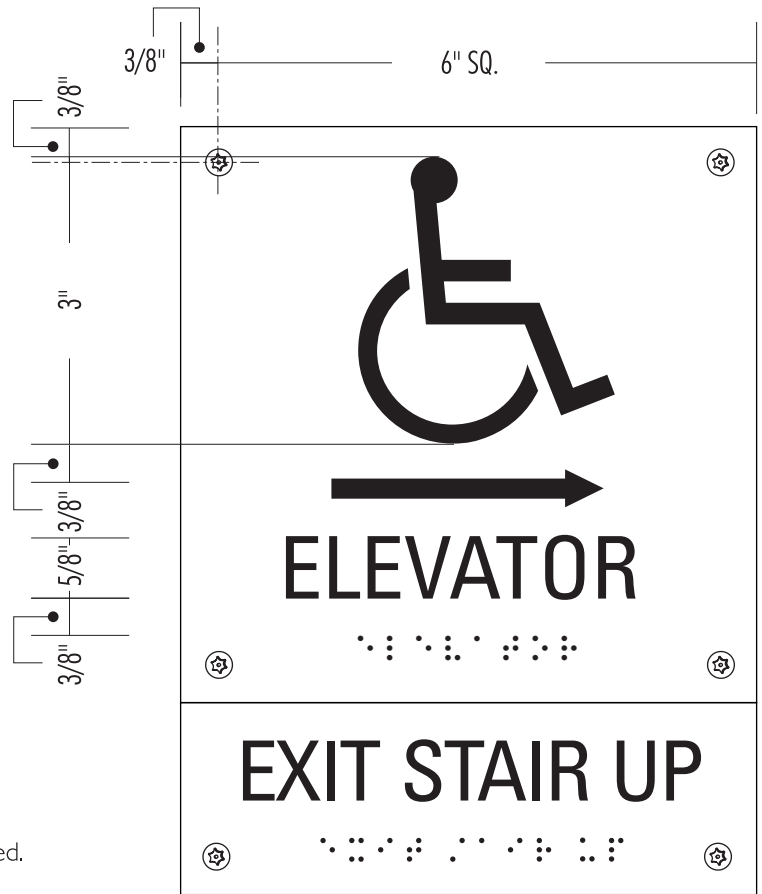
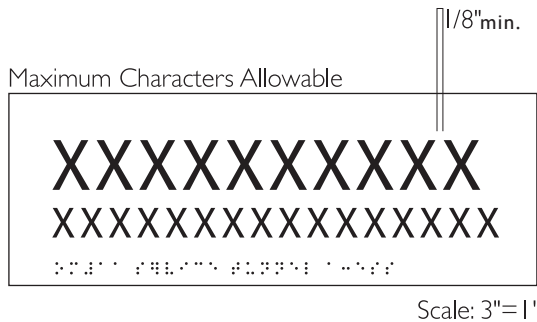


SIGN TYPE 22D

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 30



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/

1/32" tactile copy & CA grade 2 braille.

Mounts to exterior wall w/ #8 torx tamperproof screws.

Interior Use:

1/4" thick interior grade photopolymer w/

1/32" tactile copy & CA grade 2 braille.

Mounts to interior wall w/ #8 torx tamperproof screws.

COLORS

Bkgd.: Dark Rhein Silver

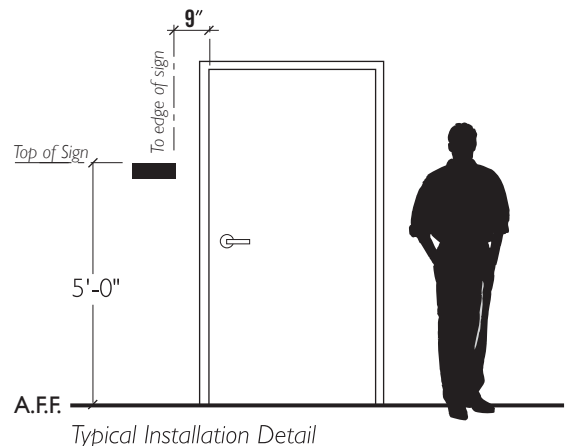
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed



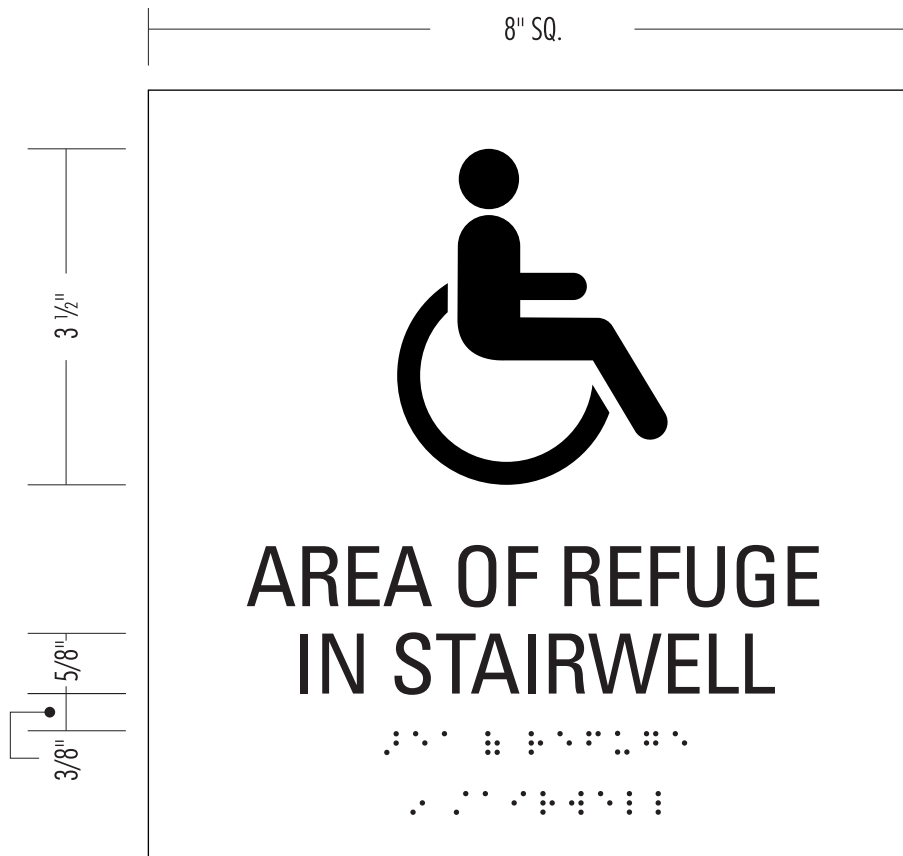
Typical Installation Detail

SIGN TYPE 30

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 31



Scale: half

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

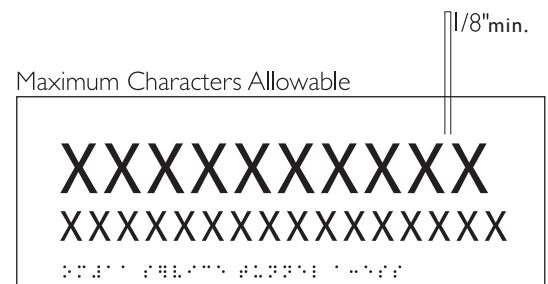
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

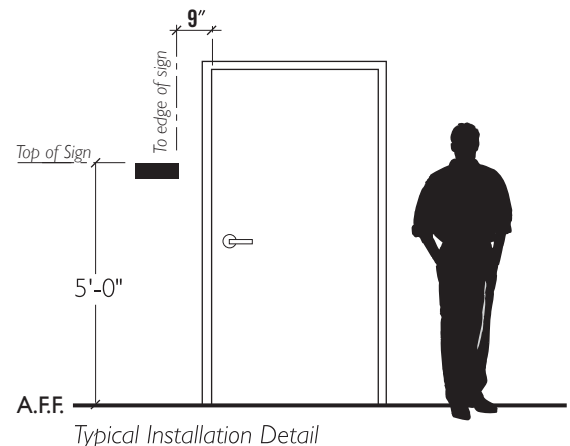
half

FONT

Univers 57 Condensed



Scale: 3"=1'

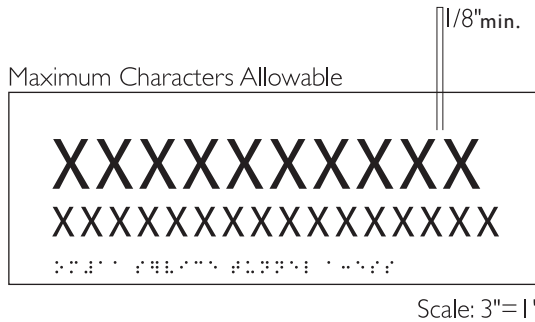


SIGN TYPE 31

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 32



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

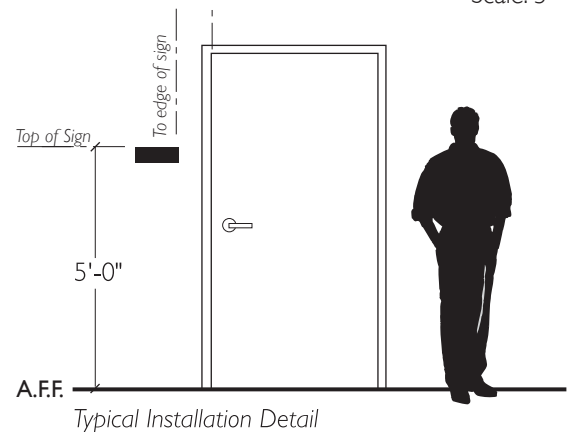
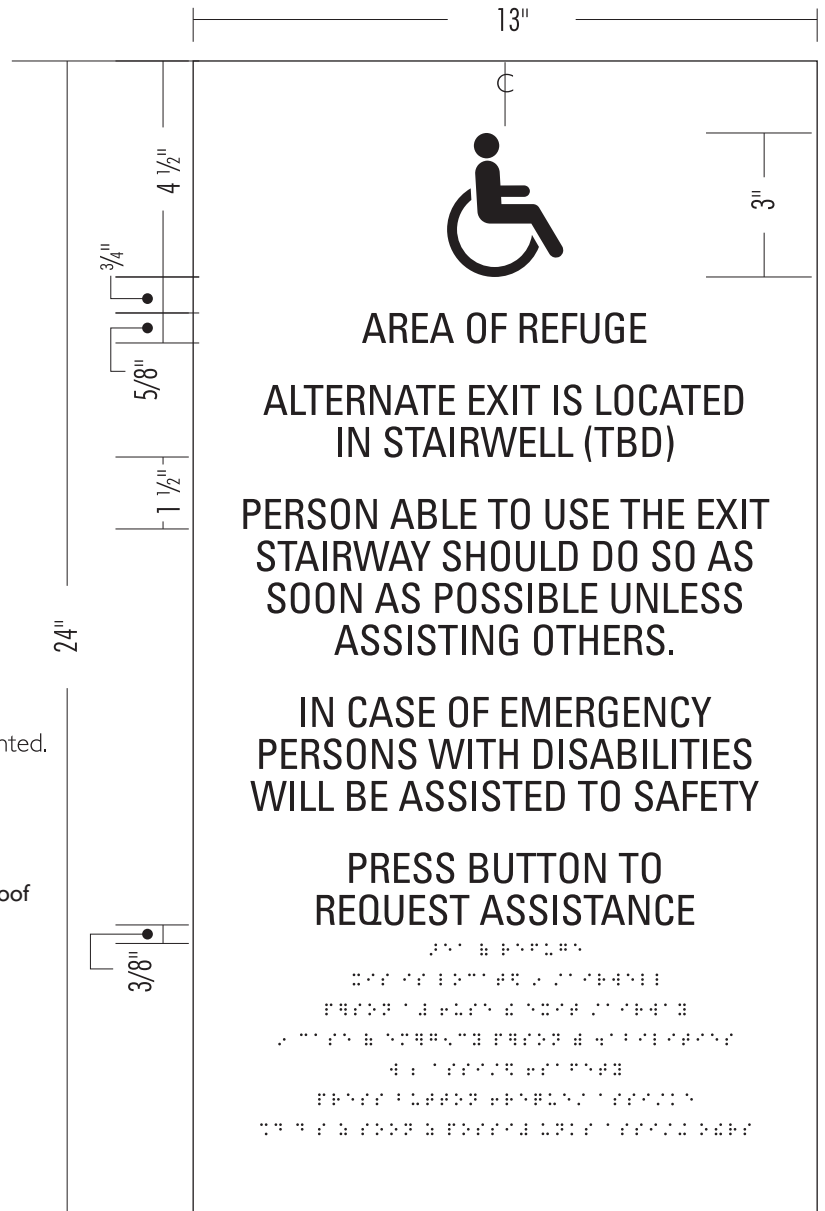
Graphics: Benj. / Moore - Branchport Brown

SCALE

3"=1'

FONT

Univers 57 Condensed

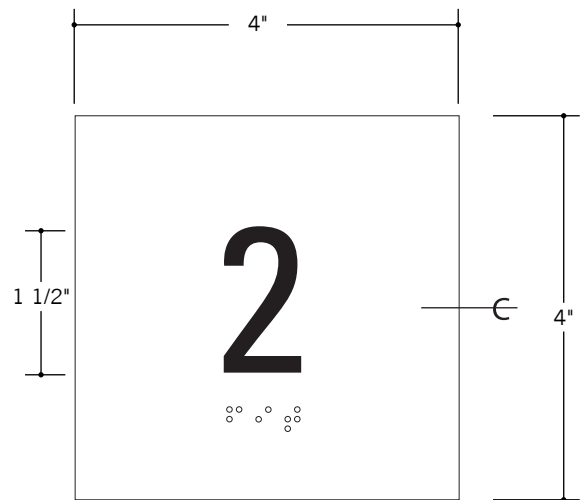
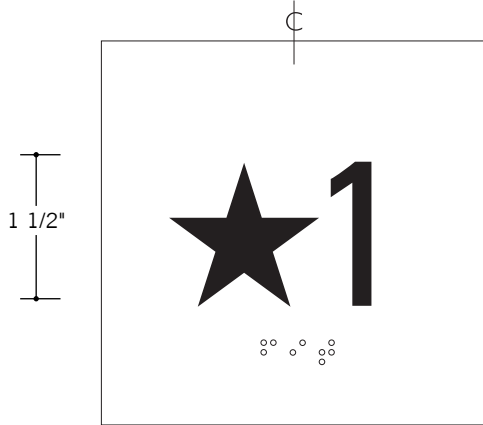


SIGN TYPE 32

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 33



Scale: half

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

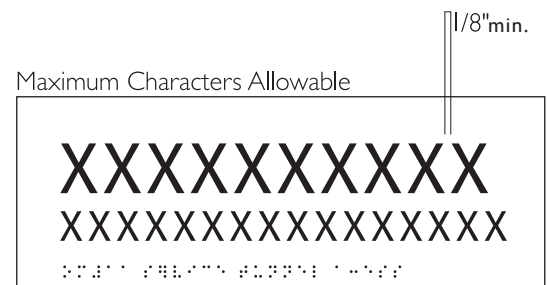
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

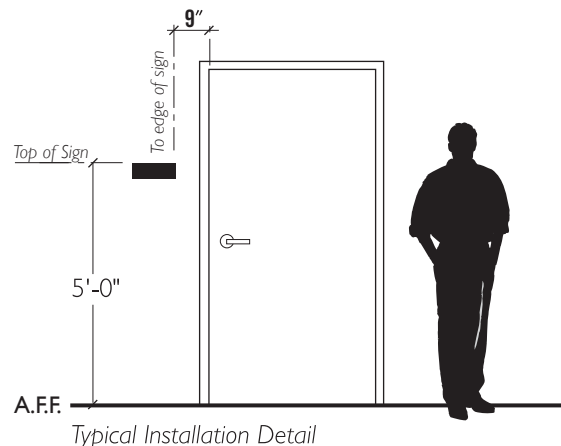
half

FONT

Univers 57 Condensed



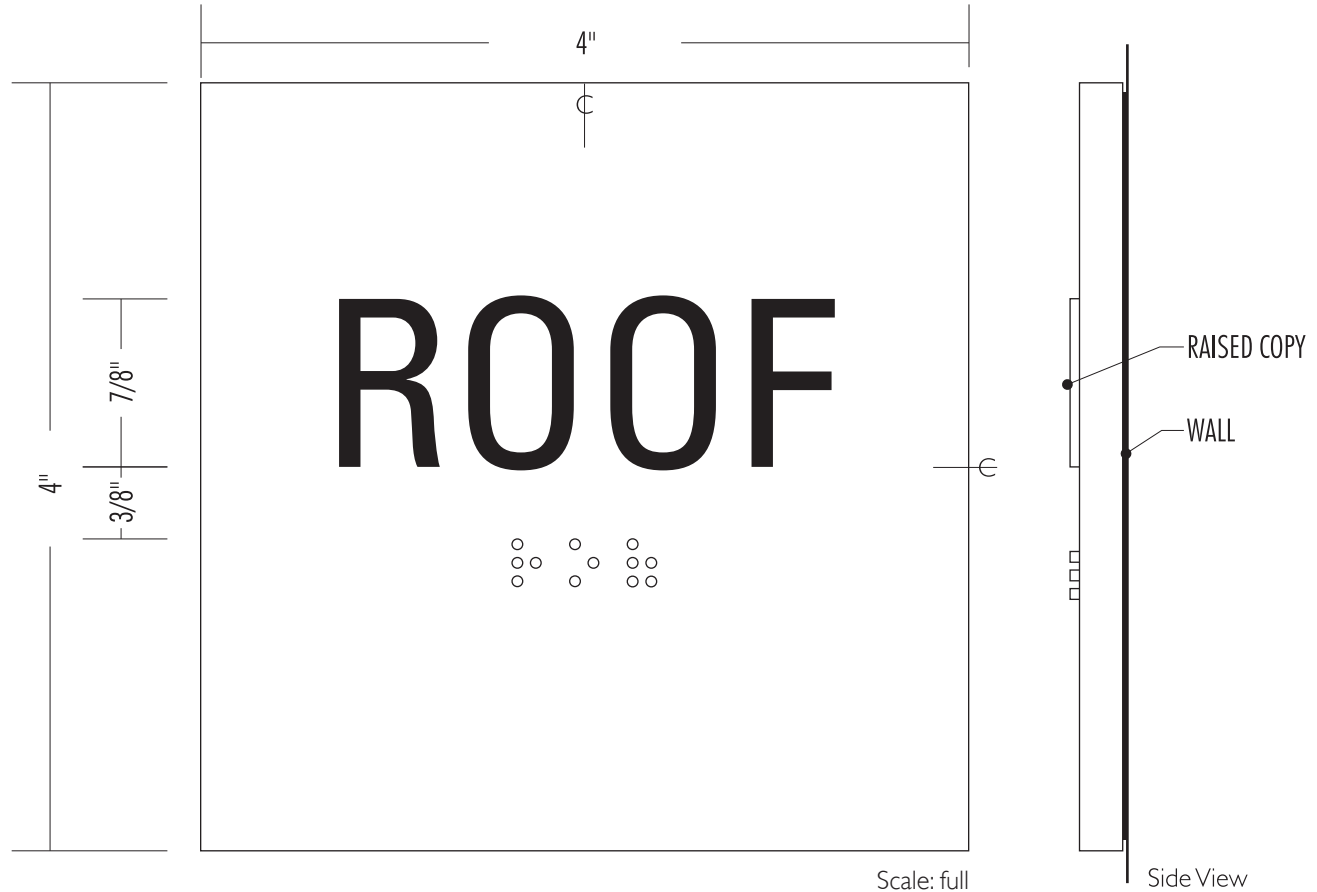
Scale: 3"=1'



Typical Installation Detail

SCALE
Full

SIGN TYPE 33



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color:
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB #

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

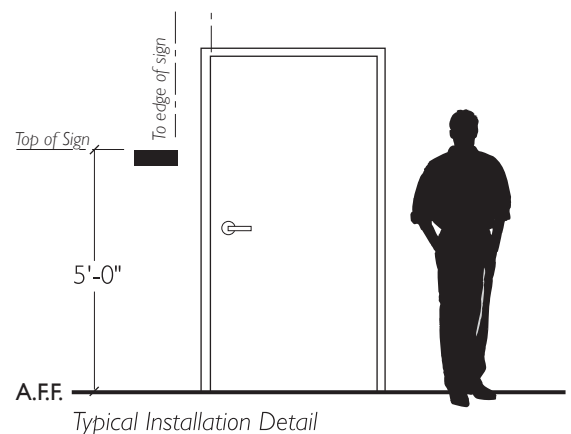
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

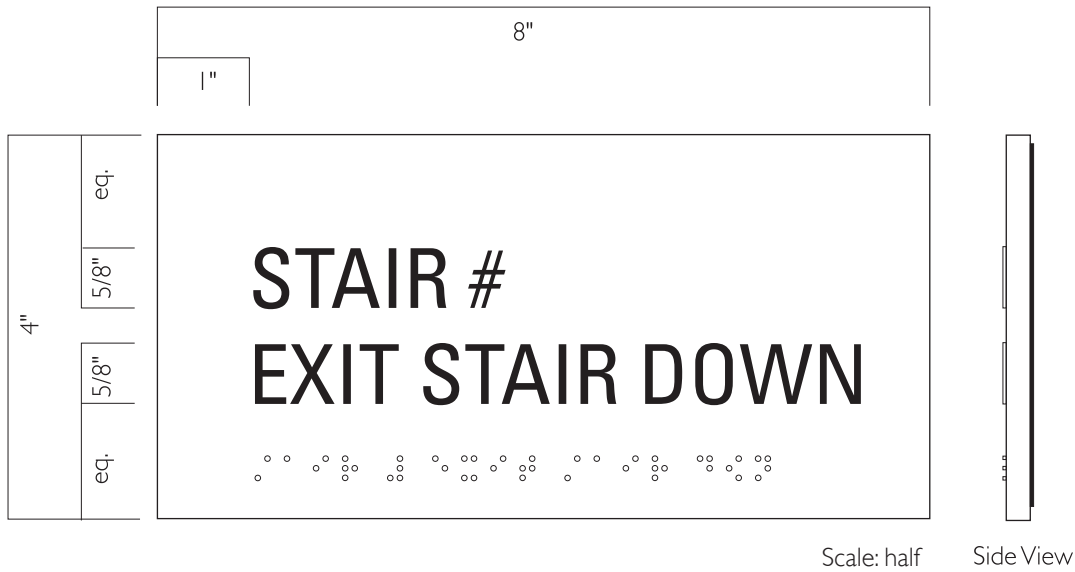
Univ 57 Condensed



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 35



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:
1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:
1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

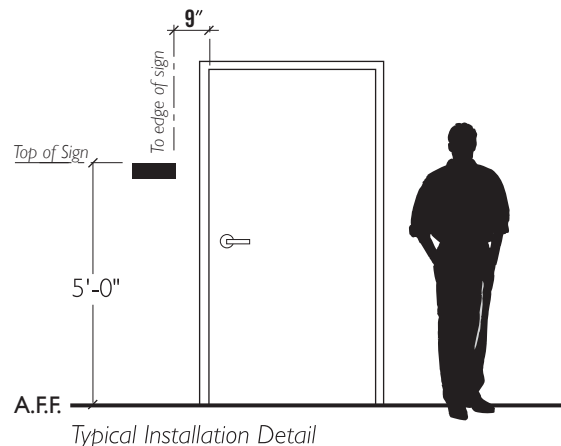
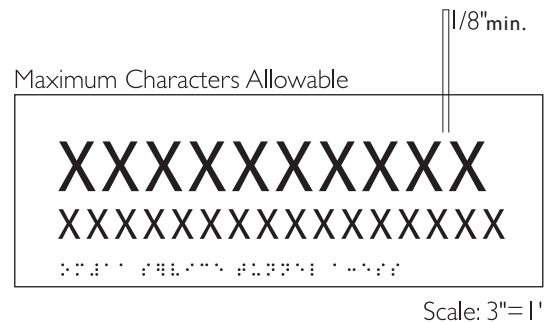
Bkgd.: Dark Rhein Silver
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Condensed

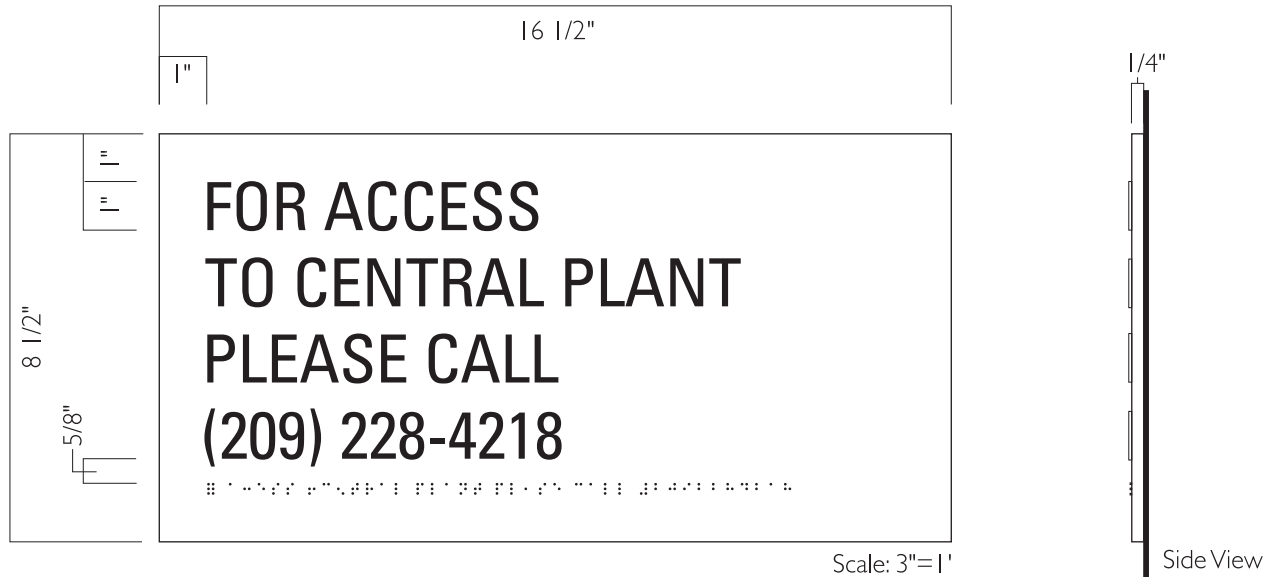


SIGN TYPE 35

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 36



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

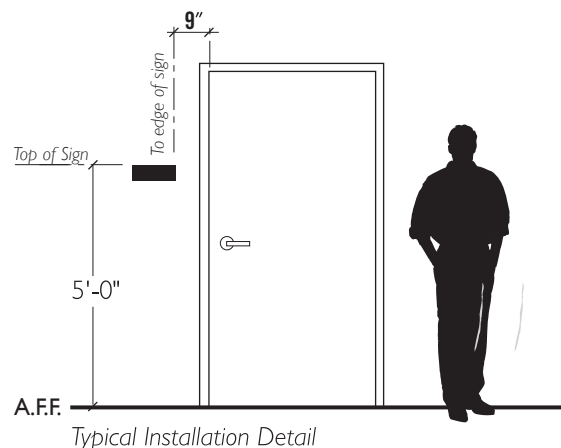
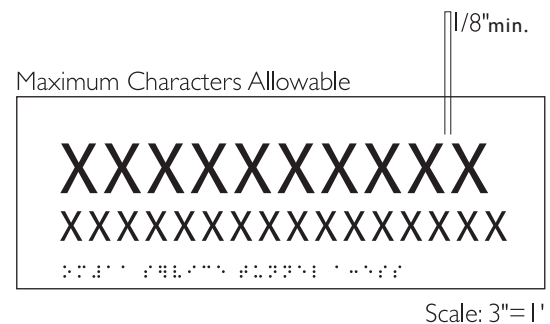
Graphics: Benj. / Moore - Branchport Brown

SCALE

half

FONT

Univers 57 Bold Condensed

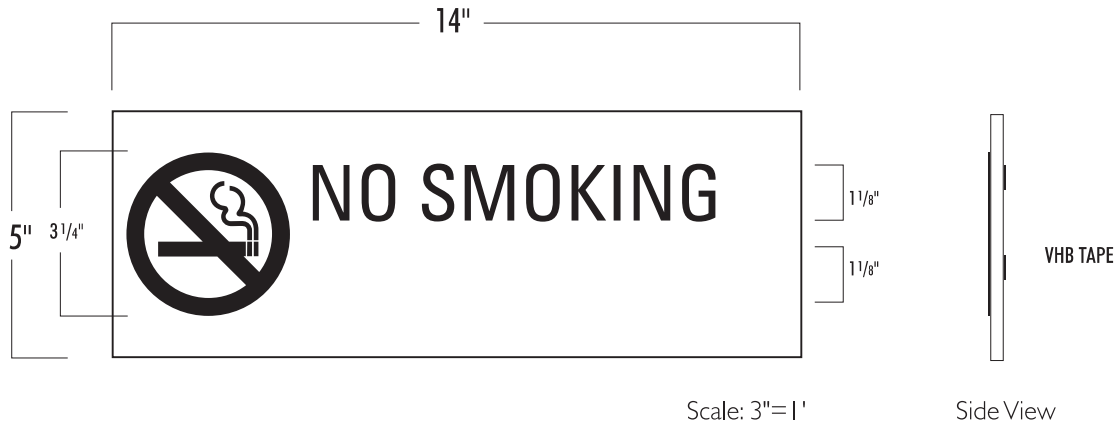


SIGN TYPE 36

UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

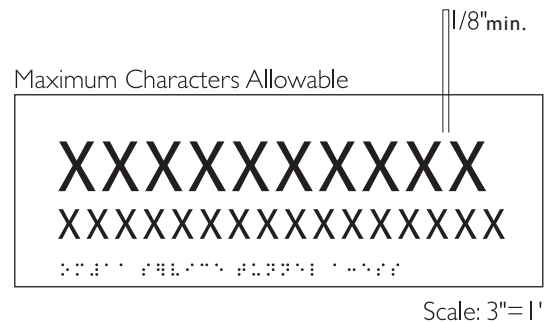
SIGN TYPE 40



Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.



PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

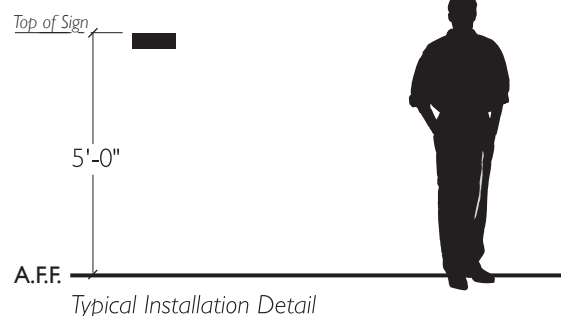
Graphics: Benj. / Moore - Branchport Brown

SCALE

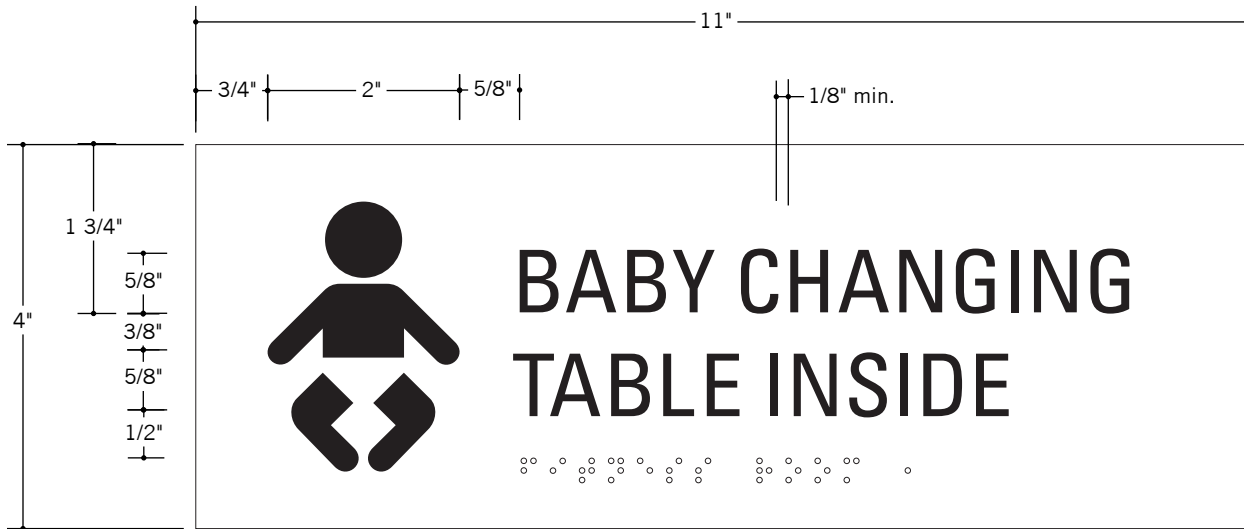
half

FONT

Univers 57 Condensed



SIGN TYPE 40



Scale: half

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color:
Signs to mount w/ VHB Tape and Silicone.

For housing:
Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB #

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

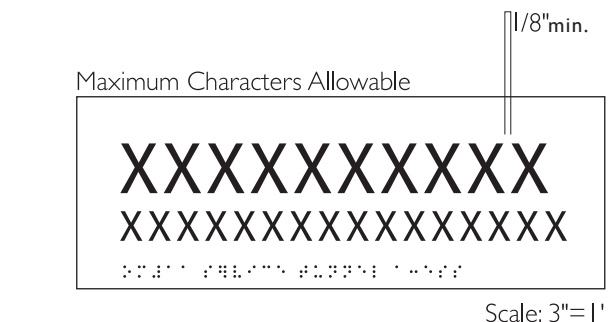
Graphics: Benj. / Moore - Branchport Brown

SCALE

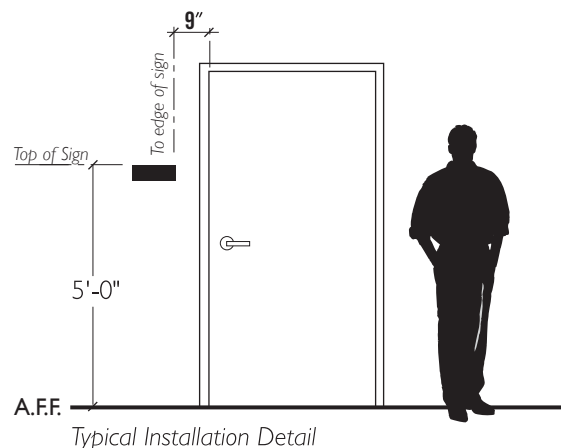
half

FONT

Univers 57 Condensed



Scale: 3"=1'



Typical Installation Detail

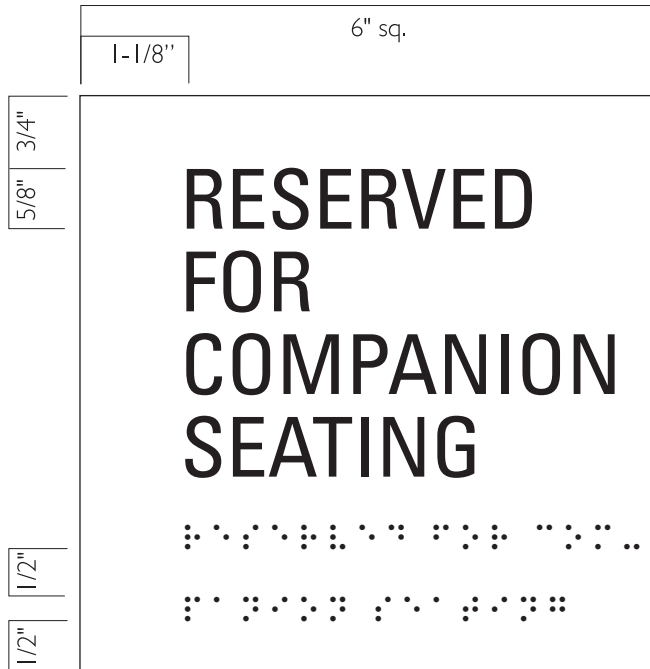
SIGN TYPE 42



UC MERCED INTERIOR SIGNAGE PACKAGE

UC MERCED

SIGN TYPE 12A: COMPANION SEATING



Scale: half

Surface paint face and edges, raised copy to be screenprinted.
Braille remains background color.
Signs to mount w/ VHB Tape and Silicone.

For housing:

Signs shall be installed w/ (4) #8 TORX tamper proof hardware, pin TORX driver bit. Mounting shall be weather proof in exterior applications.

Note: Copy list to be provided by client.

PROJECT

UC Merced

JOB

DESCRIPTION

Exterior Use:

1/4" thick exterior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

Interior Use:

1/4" thick interior grade photopolymer w/
1/32" tactile copy & CA grade 2 braille.

COLORS

Bkgd.: Dark Rhein Silver

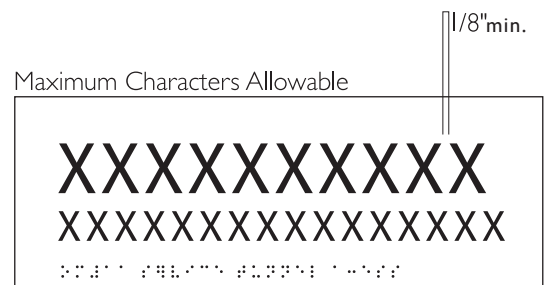
Graphics: Benj. / Moore - Branchport Brown

SCALE

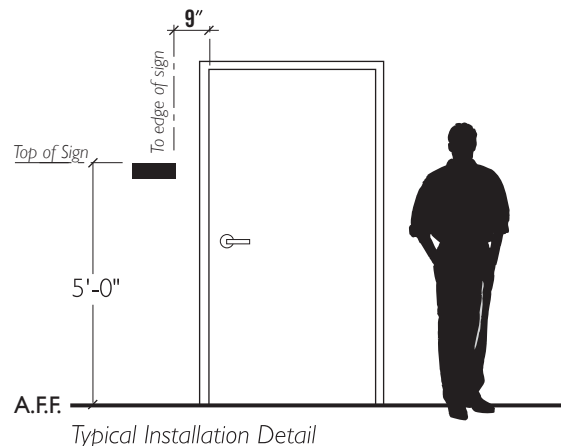
half

FONT

Univers 57 Condensed



Scale: 3"=1'



SIGN TYPE 12A

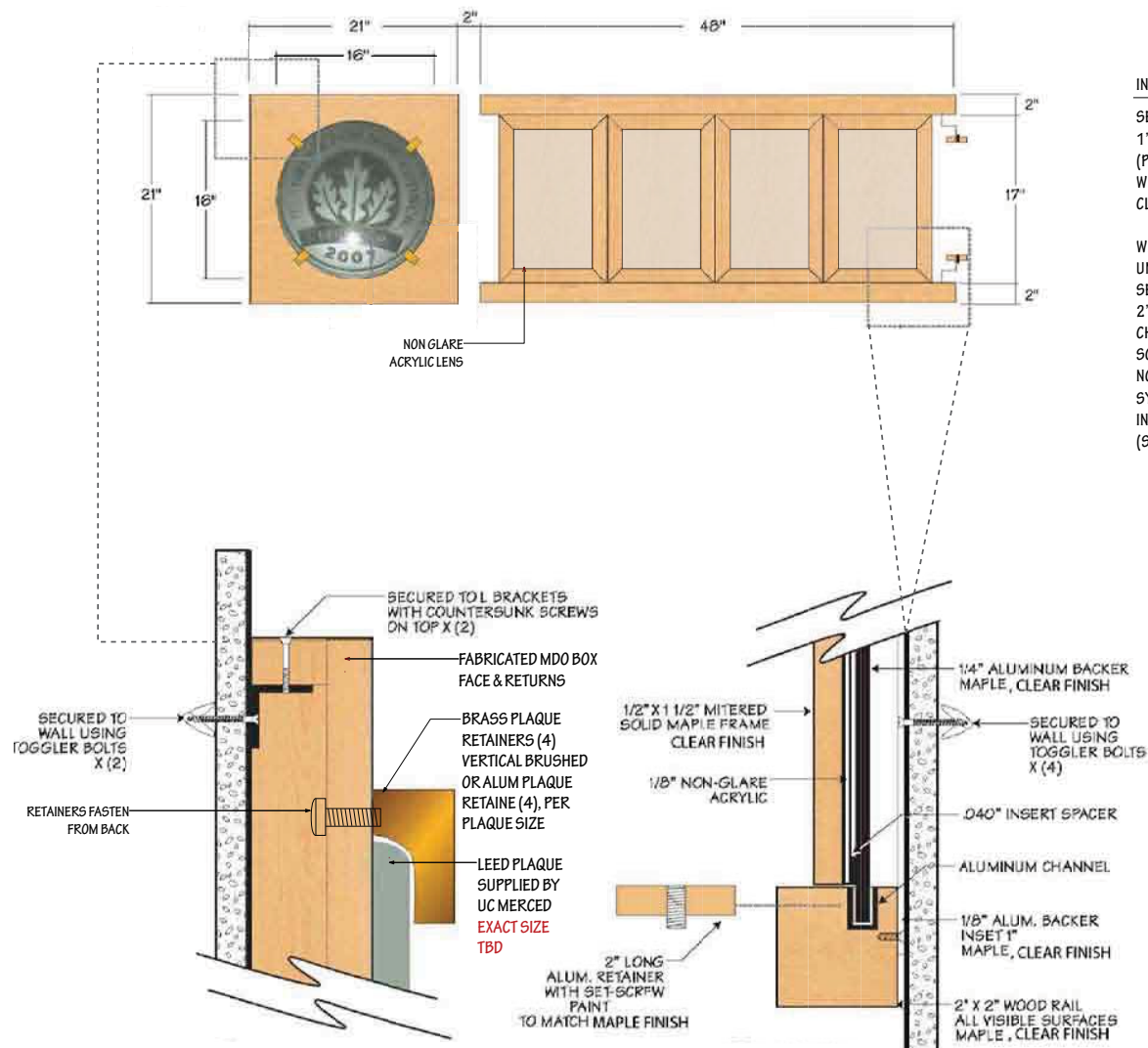
Ellis & Ellis
SIGN SYSTEMS

Contractor's License #545167

UNDERSIZED 1/8" ALUMINUM BACKER PANEL
SECURED TO WALL WITH TOGGLE BOLTS (MIN 4).
2" X 2" TOP AND BOTTOM FRAME RAILS WITH ALUMINUM
CHANNEL TO RECEIVE 1/4" ALUMINUM BACKER.
SOLID MAPLE "WINDOW" FRAMES CONSTRUCTED WITH
NON-GLARE ACRYLIC FACES, TO SLIDE OUT OF RAIL
SYSTEM TO ACCESS COLOR PAPER INSERTS.
INSERTS PROVIDED BY UC MERCED.
(SEE SIDE DETAIL(S) FOR CONSTRUCTION)

Scale AS NOTED

- 1) Electrical must be within 6' of sign.
- 2) Must have bonded earth ground from electrical panel to sign location
- 3) N.E.C. requires dedicated circuits to signs.
- 4) No roof penetrations.

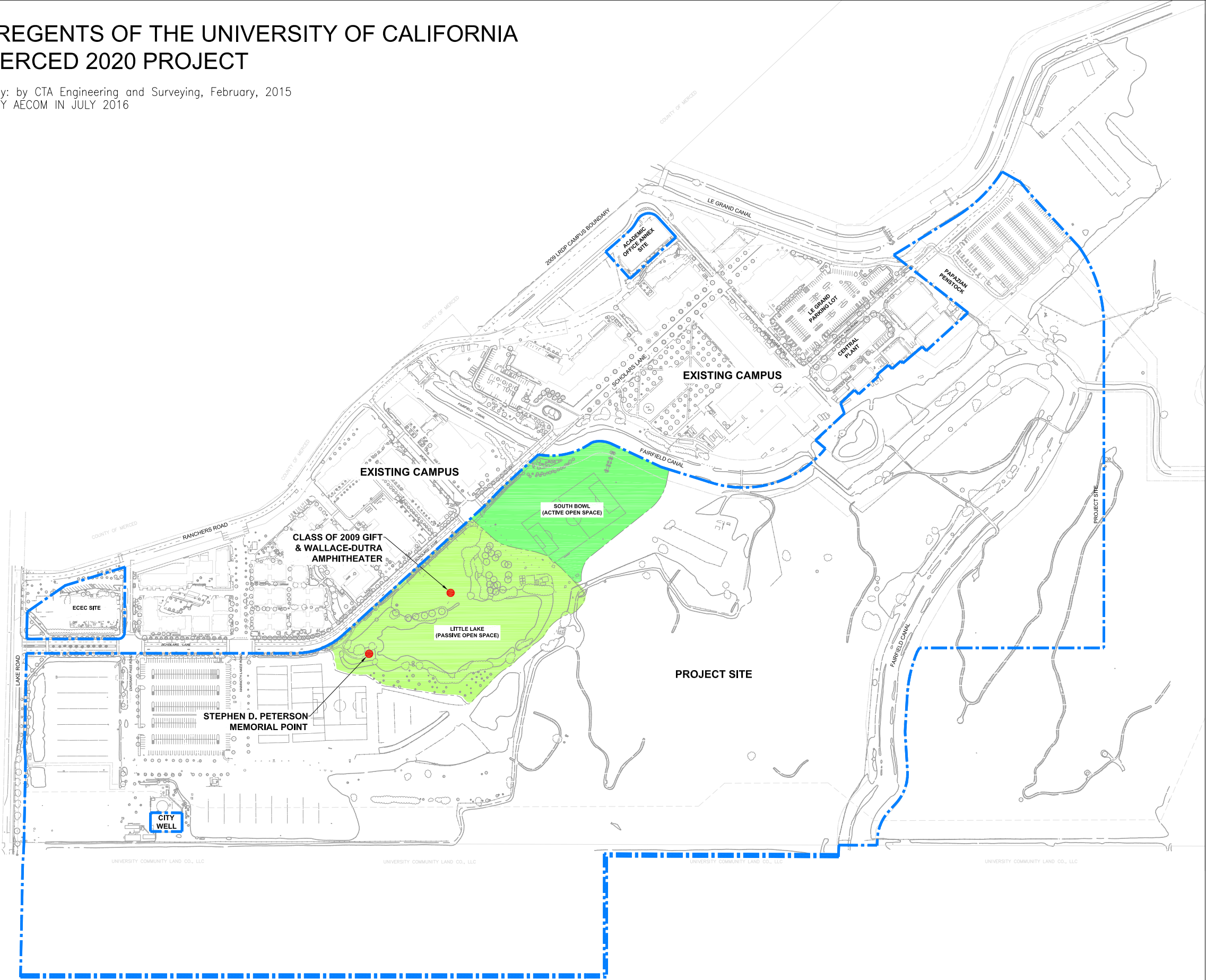


APPENDIX 13 – PROJECT SITE DONATION PARCELS

(See attached.)

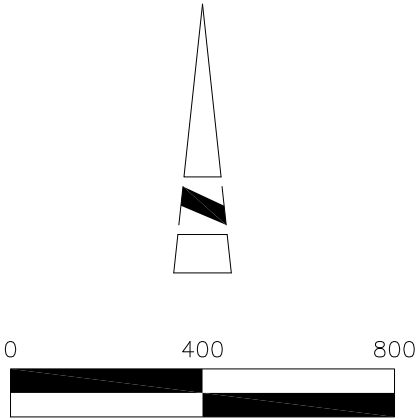
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
UC MERCED 2020 PROJECT

ALTA Survey: by CTA Engineering and Surveying, February, 2015
UPDATES BY AECOM IN JULY 2016



LEGEND:

- PROJECT SITE 2020 BOUNDARY
- DONATION AREAS



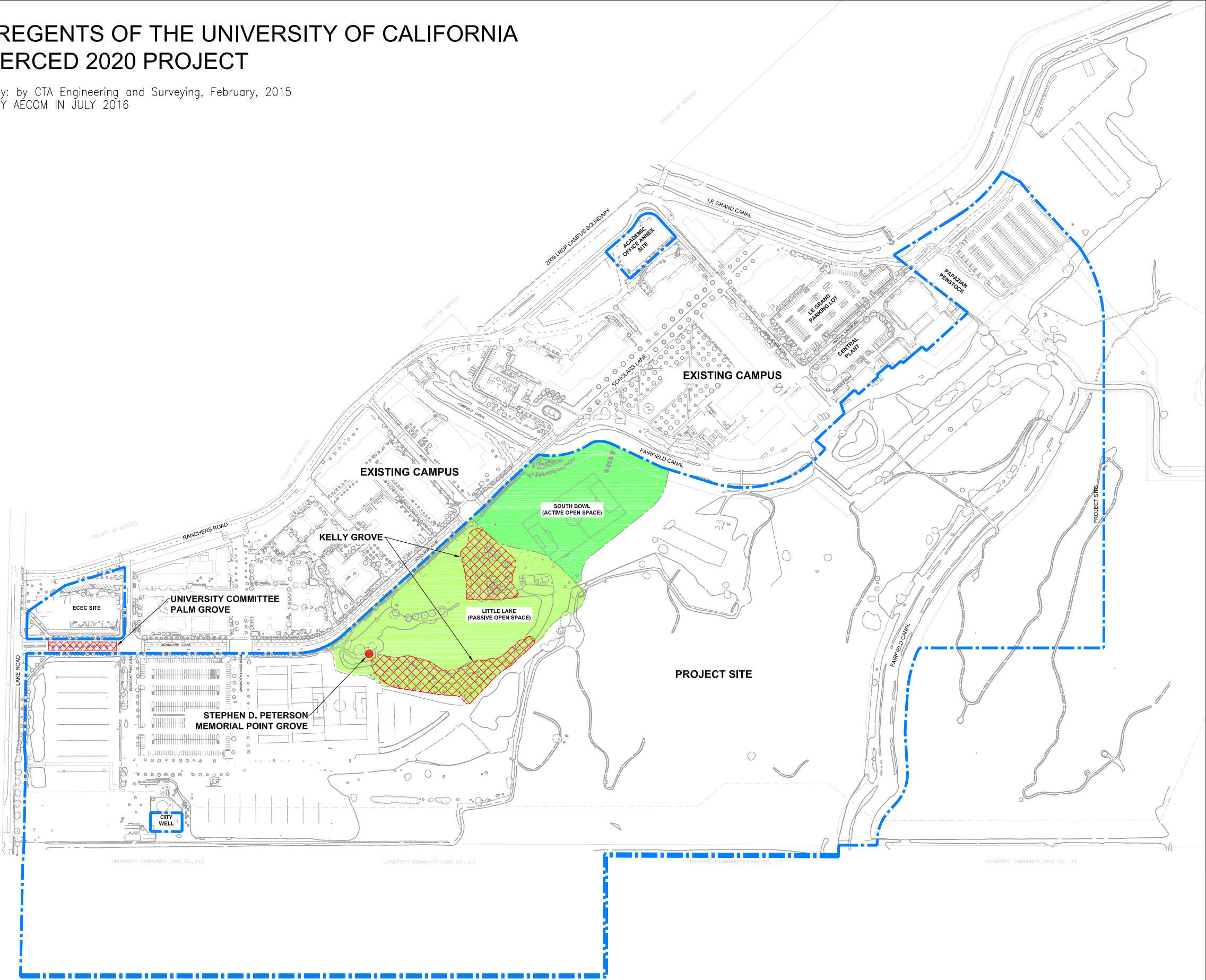
DONATION AREAS WITHIN
THE UC MERCED 2020
PROJECT SITE

APPENDIX 14 –TREE PRESERVATION AREAS



(See attached.)

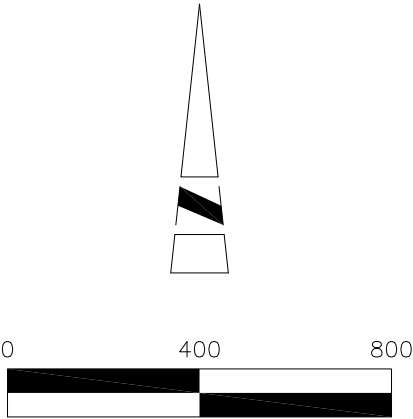
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
UC MERCED 2020 PROJECT

ALTA Survey: by CTA Engineering and Surveying, February, 2015
UPDATES BY AECOM IN JULY 2016



LEGEND:

-  PROJECT SITE 2020 BOUNDARY
-  TRANSPORTATION BUFFER BOUNDARY



TREE PRESERVATION AREAS
WITHIN THE UC MERCED 2020
PROJECT SITE

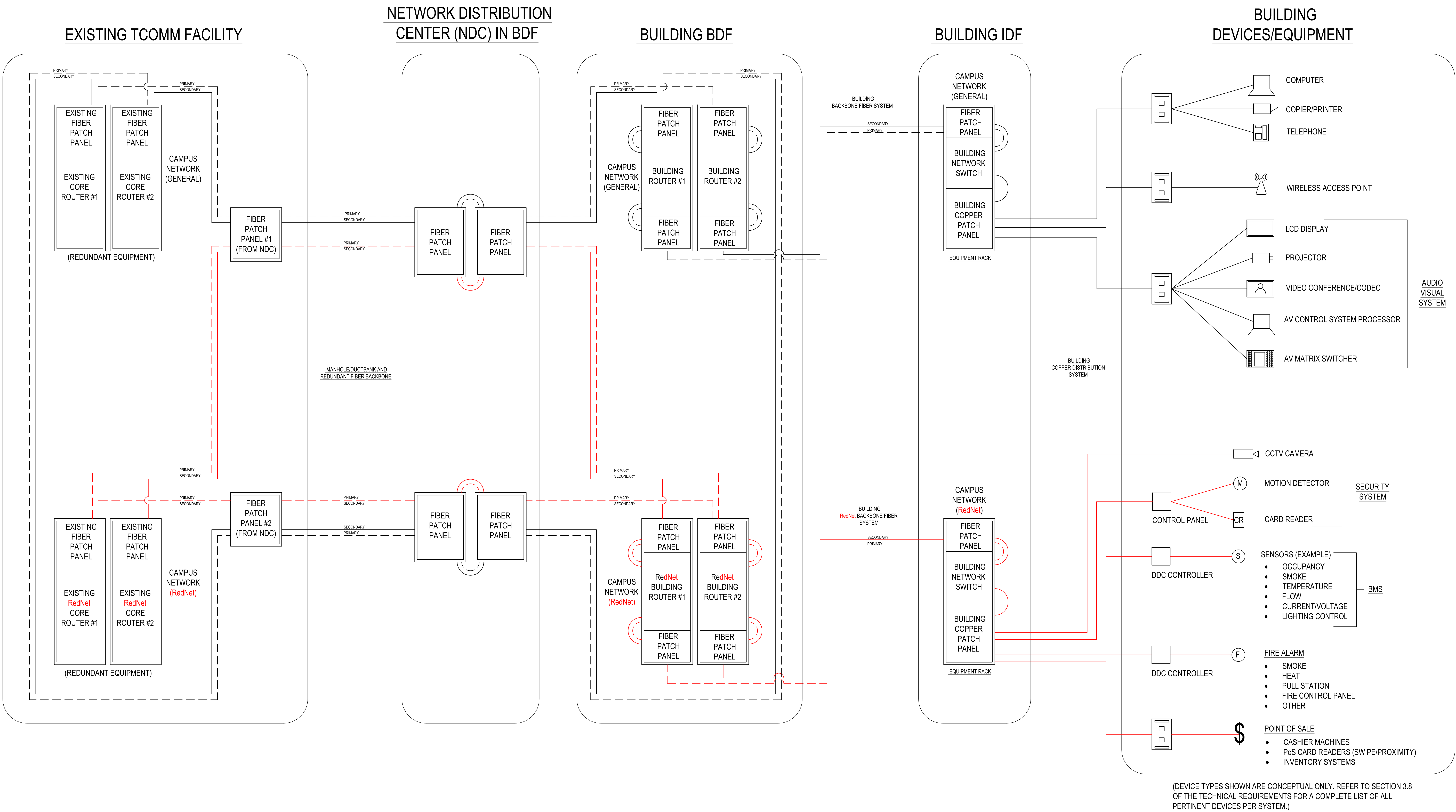
APPENDIX 15 – CUSTODIAL SERVICES CLEANING PRODUCTS

- (1) CalChem – Green Gum Remover
- (2) 3M Glass cleaner
- (3) 3M Neutral cleaner
- (4) 3M Bathroom disinfectant cleaner
- (5) 3M Quat Disinfectant cleaner
- (6) 3M General Purpose cleaner
- (7) 3M 3-in -1 Floor cleaner
- (8) Hillyard Non-Acid restroom Disinfectant cleaner
- (9) Hillyard Mariner Acid Restroom cleaner
- (10) Hillyard RE-JUV-NAL Disinfectant cleaner
- (11) Hillyard Suprox Multipurpose cleaner
- (12) Hillyard Arsenal Neutralizer Carpet Rinse
- (13) Hillyard Carpet Pre- Spray
- (14) Hillyard Stainless Steel cleaner and polish
- (15) Hillyard Crème Clean cleaner
- (16) Hillyard EP 22 Floor Finish
- (17) Hillyard Terrazzine Floor Seal
- (18) Hillyard Devastator Floor Stripper
- (19) Waxie Defoamer- Foam Disipater
- (20) Waxie Green Certified Foam Soap
- (21) Waxie Green Lotionized Hand Soap
- (22) Waxie Sureflo Pink Lotion Hand Soap
- (23) Waxie Air Fresh 9000
- (24) Waxie HD Liquid Laundry Detergent
- (25) Waxie Pledge Furniture Polish
- (26) Waxie Liquid Enzymes
- (27) Waxie Green Encapsulating Carpet Extraction cleaner
- (28) Waxie Fibercare – Carpet Soil Extraction cleaner

APPENDIX 16 – IT NETWORK DIAGRAM

(See attached.)

IT NETWORK DIAGRAM



REV.	DESCRIPTION

UNIVERSITY OF CALIFORNIA MERCED, CALIFORNIA	DEPARTMENT OF INFORMATION TECHNOLOGY
IT NETWORK DIAGRAM	



APPENDIX 17 – IT RESPONSIBILITY MATRIX

System or Device Type		Procure	Install and commission	Maintain	Operate
Passive System Components	Pathway Infrastructure: TCOMM to NDC	Developer	Developer	Developer	N/A
	Cabling Infrastructure: TCOMM to NDC	Developer	Developer	Developer	N/A
	Pathway Infrastructure: TCOMM to BDF (Existing Campus)	Developer	Developer	Developer	N/A
	Cabling Infrastructure: TCOMM to BDF (Existing Campus)	Developer	Developer	Developer	N/A
	Pathway Infrastructure: NDC to BDF	Developer	Developer	Developer	N/A
	Cabling Infrastructure: NDC to BDF	Developer	Developer	Developer	N/A
	Pathway Infrastructure: BDF to IDF	Developer	Developer	Developer	N/A
	Cabling Infrastructure: BDF to IDF	Developer	Developer	Developer	N/A
	Pathway Infrastructure: IDF to Outlet	Developer	Developer	Developer	N/A
	Cabling Infrastructure: IDF to Outlet	Developer	Developer	Developer	N/A
Security Components	Security Cameras	Developer	Developer	Owner	Owner
	Card Readers	Developer	Developer	Owner	Owner
	Motion Sensors	Developer	Developer	Owner	Owner
	Request to Exit sensors	Developer	Developer	Owner	Owner
	Glass Break Sensors	Developer	Developer	Owner	Owner
	Door Contacts	Developer	Developer	Owner	Owner
	Controllers	Developer	Developer	Owner	Owner
	Network Video Servers	Developer	Developer	Owner	Owner
	Security Video Monitors (Police Dept.)	Developer	Developer	Owner	Owner
	Blue Light Stations	Developer	Developer	Owner	Owner

System or Device Type		Procure	Install and commission	Maintain	Operate
Point of Sale Components	Cash Registers	Developer	Developer	Owner	Owner
	Inventory Readers (wireless)	Developer	Developer	Owner	Owner
	Point of Sale Card Swipes/Readers	Developer	Developer	Owner	Owner

System or Device Type*		Procure	Install and commission	Maintain	Operate
------------------------	--	---------	------------------------	----------	---------

Building Management System Sensors	Water Detectors	Developer	Developer	Developer	Developer
	Temperature Sensors	Developer	Developer	Developer	Developer
	Thermostats	Developer	Developer	Developer	Developer
	Pressure Sensors	Developer	Developer	Developer	Developer
	Flow Sensors (Air/Water)	Developer	Developer	Developer	Developer
	Humidity Sensors	Developer	Developer	Developer	Developer
	Carbon Monoxide Sensors	Developer	Developer	Developer	Developer
	Carbon Dioxide Sensors	Developer	Developer	Developer	Developer
	Electrical Transducers (Current/Voltage)	Developer	Developer	Developer	Developer
	Lux Level Sensors	Developer	Developer	Developer	Developer
	Occupancy Sensors	Developer	Developer	Developer	Developer
	DDC Controllers	Developer	Developer	Developer	Developer

Fire Alarm Components	Duct Detector	Developer	Developer	Developer	Developer
	Smoke Detector	Developer	Developer	Developer	Developer
	Heat Detector	Developer	Developer	Developer	Developer
	Elevator Recall	Developer	Developer	Developer	Developer
	Manual Pull Station	Developer	Developer	Developer	Developer
	Notification Appliances (Strobe/Speaker)	Developer	Developer	Developer	Developer
	Door Release	Developer	Developer	Developer	Developer
	Fire Control Panel	Developer	Developer	Developer	Developer

System or Device Type*		Procure	Install and commission	Maintain	Operate
	Waterflow Switch	Developer	Developer	Developer	Developer
	HFC Activation (FM-200)	Developer	Developer	Developer	Developer
Network Active Electronics	Network Switches	Owner	Owner	Owner	Owner
	Network Routers	Owner	Owner	Owner	Owner
	Network Security Devices	Owner	Owner	Owner	Owner
	Wireless Access Points/Wireless Controllers	Owner	Owner	Owner	Owner
Audio-Visual Equipment	Audio Speaker	Developer	Developer	Owner	Owner
	Wireless Mic Receiver	Developer	Developer	Owner	Owner
	Digital Sound Processor	Developer	Developer	Owner	Owner
	Infrared Transmitter (Audio)	Developer	Developer	Owner	Owner
	Infrared Radiator (Audio)	Developer	Developer	Owner	Owner
	Amplifier	Developer	Developer	Owner	Owner
	Audio and Video Matrix Switcher	Developer	Developer	Owner	Owner
	CD/DVD/Blu-Ray Player	Developer	Developer	Owner	Owner
	Document Camera	Developer	Developer	Owner	Owner
	Lecture Capture Recorder	Developer	Developer	Owner	Owner
	Lecture Camera	Developer	Developer	Owner	Owner
	Video Conferencing System (Codec, Camera, etc.)	Developer	Developer	Owner	Owner
	AV Touch Screen Controllers	Developer	Developer	Owner	Owner
	AV Control System Processor	Developer	Developer	Owner	Owner
	Projector	Developer	Developer	Owner	Owner
	LCD Display	Developer	Developer	Owner	Owner

APPENDIX 18 – IT EQUIPMENT PACKAGES

APPENDIX 18-A AV EQUIPMENT PACKAGES

APPENDIX 18-B POINT OF SALE EQUIPMENT PACKAGES

APPENDIX 18-A – AV EQUIPMENT PACKAGES

(See attached.)

UCM 2020: AV EQUIPMENT PACKAGES

AV01a - 299 Seat Lecture, 90 Seat Lecture, 90 Seat Lecture (TEAL)

Function	Quantity	Item	Additional Information
Audio Capture			
	2	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
	1	Microphone, Lectern	Manufacturer: Shure
Audio Controller			
	2	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
	1	Audio Processor	Manufacturer: ClearOne
Audio Output			
		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System			
	2	Closet Rack Console	Manufacturer: Middle Atlantic
Room Controller			
	1	48 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
	1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
	1	Touch Panel, Lectern	Manufacturer: AMX
	1	Touch Panel, Wall	Manufacturer: AMX
Video Capture			
	1	Camera, Ceiling Document	Manufacturer: Wolfvision
	1	Camera, Document	Manufacturer: Elmo, Model#: P100N
	2	Camera, Wall Mounted PTZ	Manufacturer: Sony, Model#: BRCZ700
	1	Recorder, Lecture Capture	Manufacturer: MediaSite, Model#: RL
Video Controller/Input			
	1	Blu-Ray/DVD/VHS Player	
	32	Input/Output Carts	Manufacturer: Pure Link or AMX
	1	Matrix Switcher	Manufacturer: Pure Link or AMX
Video Output			
	2	LED Screen, 80" (Front & Back, confidence monitors)	Manufacturer: Panasonic
	1	Projector, 8500 Lumen WUXGA (Projection screen in base building - teaching wall)	Manufacturer: Christie, Model#: DWU951

AV01b - 90 Seat Lecture

Function	Quantity	Item	Additional Information
Audio Capture			
	2	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
	1	Microphone, Lectern	Manufacturer: Shure
Audio Controller			
	2	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
	1	Audio Processor	Manufacturer: ClearOne
Audio Output			
		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System			
	2	Closet Rack Console	Manufacturer: Middle Atlantic

Room Controller

1	48 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
1	Touch Panel, Lectern	Manufacturer: AMX
1	Touch Panel, Wall	Manufacturer: AMX

Video Capture

1	Camera, Ceiling Document	Manufacturer: Wolfvision
1	Camera, Document	Manufacturer: Elmo, Model#: P100N
2	Camera, Wall Mounted PTZ	Manufacturer: Sony, Model#: BRCZ700
1	Recorder, Lecture Capture	Manufacturer: MediaSite, Model#: RL

Video Controller/Input

1	Blu-Ray/DVD/VHS Player	
32	Input/Output Carts	Manufacturer: Pure Link or AMX
1	Matrix Switcher	Manufacturer: Pure Link or AMX

Video Output

2	LED Screen, 80" (Front & Back, confidence monitors)	Manufacturer: Panasonic
1	Projector, 1200 Lumen Panasonic Laser projector	Manufacturer: Panasonic, Model#: Laser Projector PT-RZ12K

AV01c - 90 Seat Lecture (TEAL)

Function	Quantity	Item	Additional Information
----------	----------	------	------------------------

Audio Capture

2	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
1	Microphone, Lectern	Manufacturer: Shure

Audio Controller

2	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
1	Audio Processor	Manufacturer: ClearOne

Audio Output

	Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
	Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL

Rack System

2	Closet Rack Console	Manufacturer: Middle Atlantic
---	---------------------	-------------------------------

Room Controller

1	48 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
1	Touch Panel, Lectern	Manufacturer: AMX
1	Touch Panel, Wall	Manufacturer: AMX

Video Capture

1	Camera, Ceiling Document	Manufacturer: Wolfvision
1	Camera, Document	Manufacturer: Elmo, Model#: P100N
2	Camera, Wall Mounted PTZ	Manufacturer: Sony, Model#: BRCZ700
1	Recorder, Lecture Capture	Manufacturer: MediaSite, Model#: RL

Video Controller/Input

1	Blu-Ray/DVD/VHS Player	
32	Input/Output Carts	Manufacturer: Pure Link or AMX
1	Matrix Switcher	Manufacturer: Pure Link or AMX

Video Output

10	LED Screen, 55"	Manufacturer: Panasonic
2	LED Screen, 80" (Front & back, Confidence monitors)	Manufacturer: Panasonic
1	Projector, 1200 Lumen Panasonic Laser	Manufacturer: Panasonic, Model#: Laser Projector PT-RZ12K

	projector	
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AV02 - 24 Seat Classroom, 30 seat classroom, class labs

Function	Quantity	Item	Additional Information
Audio Capture			
	1	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
	1	Microphone, Lectern	Manufacturer: Shure
Audio Controller			
	1	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
	1	Audio Processor	Manufacturer: ClearOne
Audio Output			
		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System			
	1	Rack & Cabinet, In Room	Manufacturer: Middle Atlantic
	1	Recorder, Lecture Capture	Manufacturer: MediaSite, Model#: RL
Room Controller			
	1	24 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
	1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
	1	Touch Panel, Lectern	Manufacturer: AMX
	1	Touch Panel, Wall	Manufacturer: AMX
Video Capture			
	1	Camera, Document	Manufacturer: Elmo, Model#: P100N
	1	Camera, Wall Mounted PTZ	Manufacturer: Sony, Model#: BRCZ700
Video Controller/Input			
	1	Blu-Ray/DVD/VHS Player	
	1	Matrix Switcher	Manufacturer: Pure Link or AMX
Video Output			
	1	LED Screen, 65" (Mount at front & confidence monitor at rear of room)	Manufacturer: Panasonic
	1	Projector, 6500 Lumen WUXGA	Manufacturer: Panasonic, Model#: Laser Projector PT-RZ670

AV03 - Conference Rooms

Function	Quantity	Item	Additional Information
Audio Capture			
		None	
Audio Controller			
	1	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
Audio Output			
	1	Sound bar at LED Screen	
Rack System			
	1	Rack & Cabinet, In Room	Manufacturer: Middle Atlantic
Room Controller			
	1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
Video Capture			
		None	
Video Controller/Input			
	1	Matrix Switcher	Manufacturer: Pure Link or AMX
Video Output			
	1	LED Screen, 60" (Mount at front)	Manufacturer: Sharp, Model#: PN-E602

AV04 - Huddle

Room

Function	Quantity	Item	Additional Information
Audio Capture		None	
Audio Controller		None	
Audio Output	1	Sound bar at LED Screen	
Rack System		None	
Room Controller		None	
Video Capture		None	
Video Controller/Input	1	Matrix Switcher	Manufacturer: Pure Link or AMX
Video Output	1	LED Screen, 60" (Mount at front)	Manufacturer: Sharp, Model#: PN-E602

AV05 - Board Room

Function	Quantity	Item	Additional Information
Audio Capture	1	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
	1	Microphone, Ceiling mount, wireless	
	1	Microphone, Lectern	Manufacturer: Shure
Audio Controller	1	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
	1	Audio Processor	Manufacturer: ClearOne
Audio Output		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System	1	Rack & Cabinet, In Room	Manufacturer: Middle Atlantic
Room Controller	1	24 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
	1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
	1	Touch Panel, Lectern	Manufacturer: AMX
	1	Touch Panel, Wall	Manufacturer: AMX
Video Capture	1	Camera, Document	Manufacturer: Elmo, Model#: P100N
	3	Camera, Wall Mounted PTZ	Manufacturer: Sony, Model#: BRCZ700
Video Controller/Input	1	Blu-Ray/DVD/VHS Player	
	12	Input/Output Carts	Manufacturer: Pure Link or AMX
	1	Matrix Switcher (8x8 with boards)	Manufacturer: Pure Link or AMX
Video Output	4	LED Screen, 65" (Mount at front)	Manufacturer: Panasonic
	1	Projector, 6500 Lumen WUXGA	Manufacturer: Panasonic, Model#: Laser Projector PT-RZ670
Videoconference			

3	Camera, Wall/Ceiling mount (videoconferencing)	
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AV06 - Public Space (lobbies, etc.)

Function	Quantity	Item	Additional Information
Audio Capture		None	
Audio Controller		None	
Audio Output	1	Sound bar at LED Screen	
Rack System		None	
Room Controller		None	
Video Capture		None	
Video Controller/Input	1	Matrix Switcher	Manufacturer: Pure Link or AMX
Video Output	1	LED Screen, 60" (Mount at front)	Manufacturer: Sharp, Model#: PN-E602

AV07 - Ballroom

Function	Quantity	Item	Additional Information
Audio Capture	6	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
	3	Microphone, Lectern	Manufacturer: Shure
Audio Controller	1	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
	1	Audio Processor	Manufacturer: ClearOne
Audio Output		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System	1	Closet Rack Console	Manufacturer: Middle Atlantic
Room Controller	1	24 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
	1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
	3	Touch Panel, Lectern	Manufacturer: AMX
	3	Touch Panel, Wall	Manufacturer: AMX
Video Capture	1	Blu-Ray/DVD/VHS Player	
	1	Camera, Document	Manufacturer: Elmo, Model#: P100N
	16	Input/Output Carts	Manufacturer: Pure Link or AMX
	1	Matrix Switcher	Manufacturer: Pure Link or AMX
Video Output	2	Projection Screens, Ceiling Mounted	
	2	Projector, 8500 Lumen WUXGA	Manufacturer: Christie, Model#: DWU951

AV08 - Large Meeting Rooms/Multipurpose

Function	Quantity	Item	Additional Information
Audio Capture			
	2	Microphone System, Wireless	Manufacturer: Shure (Receiver and 4 transmitters)
	1	Microphone, Lectern	Manufacturer: Shure
Audio Controller			
	1	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
	1	Audio Processor	Manufacturer: ClearOne
Audio Output			
		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System			
	1	Closet Rack Console	Manufacturer: Middle Atlantic
Room Controller			
	1	24 Port PoE Network Switch	Manufacturer: Brocade (Must conform to campus network standards)
	1	Controller	Manufacturer: AMX, Model#: FG5968 (MXD 1001)
	1	Touch Panel, Lectern	Manufacturer: AMX
	1	Touch Panel, Wall	Manufacturer: AMX
Video Capture			
		None	
Video Controller/Input			
	1	Blu-Ray/DVD/VHS Player	
	16	Input/Output Carts	Manufacturer: Pure Link or AMX
	1	Matrix Switcher (with boards)	Manufacturer: Pure Link or AMX
Video Output			
	1	Projection Screens, Ceiling Mounted	
	1	Projector, 6500 Lumen WUXGA	Manufacturer: Panasonic, Model#: Laser Projector PT-RZ670

AV09 - Recreation / Gaming Room

Function	Quantity	Item	Additional Information
Audio Capture			
		None	
Audio Controller			
		None	
Audio Output			
	1	Sound bar at LED Screen	
Rack System			
		None	
Room Controller			
		None	
Video Capture			
		None	
Video Controller/Input			
		Input/Output Carts (Varied, as needed)	Manufacturer: Pure Link or AMX
	1	Matrix Chassis	Manufacturer: AMX
Video Output			
	1	LED Screen, 60" (Mount at front)	Manufacturer: Sharp, Model#: PN-E602

AV10 - Videoconference Rooms

Function	Quantity	Item	Additional Information
Audio Capture		None	
Audio Controller	1	Amplifier 2CH	
Audio Output	1	Sound bar at LED Screen	
Rack System		None	
Room Controller		None	
Video Capture		None	
Video Controller/Input		None	
Video Output	1	LED Screen, 60"	Manufacturer: Sharp, Model#: PN-E602
Videoconference	1	Camera, Wall/Ceiling mount (videoconferencing)	
	1	Microphone, Ceiling mount, wireless	
	1	Video Conference CODEC	Manufacturer: Polycom

AV11 - Audio Only Spaces

Function	Quantity	Item	Additional Information
Audio Capture		None	
Audio Controller	1	Amplifier 4CH & 2CH	Manufacturer: QSC, Model#: CX204v
Audio Output	1	Audio Processor	Manufacturer: ClearOne
		Speakers, Ceiling, Voice (In base contract due to need to design into room)	Manufacturer: JBL
		Speakers, Wall, Program (In base contract due to need to design into room)	Manufacturer: JBL
Rack System		None	
Room Controller		None	
Video Capture		None	
Video Controller/Input		None	
Video Output		None	

APPENDIX 18-B – POINT OF SALE EQUIPMENT PACKAGES

(See attached.)

UCM 2020: POINT OF SALE EQUIPMENT PACKAGES

POS_001 - Central Dining

Quantity	Item	Additional Information
7	Counter mounted cash register with receipt printer	Manufacturer: Micros counter top equipment
2	Hand-held/counter-top bar code scanner	Manufacturer: Micros counter top equipment
7	Hand-held/counter-top/credit card/CAT card scanner	Manufacturer: Micros counter top equipment
7	Integrated scale connected to cash register	Manufacturer: Micros counter top equipment

POS_003 - Campus Store

Quantity	Item	Additional Information
4	Counter mounted cash register with receipt printer	Manufacturer: Micros counter top equipment
4	Hand-held RFID Scanner	Manufacturer: Micros counter top equipment
4	Hand-held/counter-top bar code/SKU scanner	Manufacturer: Micros counter top equipment
4	Hand-held/counter-top/credit card/CAT card scanner	Manufacturer: Micros counter top equipment
4	In-counter bar code/SKU scanner	Manufacturer: Micros counter top equipment

POS_004 - Register, Scanner, Printer (2)

Quantity	Item	Additional Information
2	Counter mounted cash register with receipt printer	Manufacturer: Micros counter top equipment
2	Counter-top laser printer/scanner (letter/legal/A4 size)	
2	Hand-held/counter-top/credit card/CAT card scanner	Manufacturer: Micros counter top equipment

POS_005 - Register, Scanner, Printer (1)

Quantity	Item	Additional Information
1	Counter mounted cash register with receipt printer	Manufacturer: Micros counter top equipment
1	Counter-top laser printer/scanner (letter/legal/A4 size)	
1	Hand-held/counter-top/credit card/CAT card scanner	Manufacturer: Micros counter top equipment

POS_006 - Cashier Room

Quantity	Item	Additional Information
4	Counter mounted cash register with receipt printer	Manufacturer: Micros counter top equipment
4	Counter-top laser printer/scanner (letter/legal/A4 size)	
4	Hand-held/counter-top/credit card/CAT card scanner	Manufacturer: Micros counter top equipment

APPENDIX 19 – FF&E AND AUTOCLAVE EQUIPMENT COSTING

(See attached.)

APPENDIX 19 - FF&E and Autoclave Equipment Costing

Source	Building	FF&E Package	Category	Manufacturer	Model Number	Item Description	Items & Quantities based on Original FF&E Cost				Items & Quantities based on D&C FF&E Cost						
							Orig. Qty	Unit	Unit Price	Cost	Orig. Qty	Delta	reduced Qty	Unit Price	Cost		
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Appliance	GE	EDP110P1A000	Dishwasher, Generic	12	EA	\$1,036.27	\$12,435	12	10.0	(10.0)	0	EA	\$1,036.27	\$0
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Appliance	GE	J6110H00000	Microwave, Generic	12	EA	\$266.67	\$3,200	12	10.0	(10.0)	0	EA	\$266.67	\$0
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Appliance	GE	J6110H00000	Freezer/Freezer, Generic	12	EA	\$1,249.10	\$14,989	12	10.0	(10.0)	0	EA	\$1,249.10	\$0
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Appliance	GE	J6110H00000	Refrigerator, Generic	12	EA	\$1,549.12	\$18,589	12	10.0	(10.0)	0	EA	\$1,549.12	\$0
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Appliance	GE	J6110H00000	Washer & Dryer Stack (incl. Vent Hose Kit)	12	EA	\$2,679.03	\$32,148	12	10.0	(10.0)	0	EA	\$2,679.03	\$0
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Medical Equipment	McGraw	6400.16	Autoclave, Autoclave	1	EA	\$7,128.53	\$7,129	1	0.0	0.0	1	EA	\$7,128.53	\$7,129
Appendix F	Floor 3&B.C.D Housing	Room 051C Apartment: Staff Facility in Residence	Lab Equipment	Hydrex	Q2000 - (20" wide)	Drying Rack	2	EA	\$650.56	\$1,301	2	1.0	0.0	2	EA	\$650.56	\$1,301
Appendix F	Floor 2&A Mixed Research	Room 032B Research Laboratory 10 Glassmash and Autoclave room	Lab Equipment	Refer to Area Data Sheets	Auto	Autoclave 30" Single Stack	4	EA	\$154,362.34	\$617,330	4	3.0	0.0	4	EA	\$154,362.34	\$617,330
Appendix F	Floor 2&A Mixed Research	Room 032B Research Laboratory 10 Glassmash and Autoclave room	Lab Equipment	Refer to Area Data Sheets	Auto	Autoclave 30" Single Stack	4	EA	\$154,362.34	\$617,330	4	0.0	(3.0)	3	EA	\$154,362.34	\$771,913
Appendix F	Floor 2&A Mixed Research	Room 032B Research Laboratory 10 Glassmash and Autoclave room	Lab Equipment	Hydrex	Q2000 - (20" wide)	Drying Rack	24	EA	\$660.56	\$15,814	24	21.0	(3.0)	21	EA	\$660.56	\$13,882
Appendix F	Floor 2&A Mixed Research	Room 032B Research Laboratory 10 Glassmash and Autoclave room	Lab Equipment	Hydrex	Q2000 - (20" wide)	Drying Rack	38	EA	\$660.56	\$25,420	38	32.0	(6.0)	32	EA	\$660.56	\$20,816
Appendix F	Floor 2&A Mixed Research	Room 032B Research Laboratory 10 Glassmash and Autoclave room	Lab Equipment	Refer to Area Data Sheets	0000.5	Glassware Washer/Dryer - In-situ	4	EA	\$75,449.49	\$301,798	4	3.0	0.0	4	EA	\$75,449.49	\$301,798
Appendix F	Floor 2&A Mixed Research	Room 032B Research Laboratory 10 Glassmash and Autoclave room	Lab Equipment	Refer to Area Data Sheets	0000.5	Glassware Washer/Dryer - In-situ	6	EA	\$75,449.49	\$452,697	6	0.0	(3.0)	3	EA	\$75,449.49	\$337,247
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	Steelcase	W720	Chair Transport & Storage Only	24	EA	\$218.96	\$7,655	24	21.0	(3.0)	21	EA	\$218.96	\$6,668
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	Steelcase	W720	Chair, Guest	800	EA	\$266.67	\$213,495	800	720	(200)	600	EA	\$266.67	\$160,121
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	Steelcase	W720	Chair, Guest	1	EA	\$21,350.73	\$21,351	1	0.0	0.0	1	EA	\$21,350.73	\$21,351
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	Steelcase	W720	Chair, Guest	3	EA	\$504.76	\$1,514	3	2.7	(0.3)	2	EA	\$504.76	\$1,010
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	The Stage Dept	Stage	Stage with steps, 30x12', de-mountable (includes Dolly)	2	EA	\$11,985.18	\$23,970	2	1.0	0.0	2	EA	\$11,985.18	\$23,970
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	National Public Seating	ST-716	Table, Banquet if round (17' Only)	31	EA	\$227.86	\$7,064	31	27.0	(4.0)	27	EA	\$227.86	\$6,053
Appendix F	Floor 3&C Conference Center	Room 004 Ballroom	Furniture	Steelcase	T8600C	Table, Meeting Room	62	EA	\$1,279.69	\$79,422	62	56.0	(6.0)	56	EA	\$1,279.69	\$67,089
Appendix F	Floor 1&A Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	H45M-M1-499-B-SPY	Bed	38	EA	\$723.77	\$27,503	38	34.2	(4.0)	34	EA	\$723.77	\$24,638
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	H45M-M1-499-B-SPY	Bed	52	EA	\$723.77	\$37,638	52	46.0	(6.0)	46	EA	\$723.77	\$33,203
Appendix F	Floor 1&B Housing	Room 005 Bedroom Single	Furniture	Saunders Education	702-8012	Chair, 2 Position	38	EA	\$246.92	\$9,370	38	34.2	(4.0)	34	EA	\$246.92	\$8,403
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Single	Furniture	Saunders Education	702-8012	Chair, 2 Position	52	EA	\$246.92	\$12,840	52	46.0	(6.0)	46	EA	\$246.92	\$11,259
Appendix F	Floor 1&A Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	F-01133-45	Desk, Writing	38	EA	\$205.47	\$7,808	38	34.2	(4.0)	34	EA	\$205.47	\$7,096
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	F-01133-45	Desk, Writing	52	EA	\$205.47	\$10,693	52	46.0	(6.0)	46	EA	\$205.47	\$9,474
Appendix F	Floor 1&A Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	3647-3880	Mattress, twin extra-long	38	EA	\$410.67	\$15,805	38	34.2	(4.0)	34	EA	\$410.67	\$13,993
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	3647-3880	Mattress, twin extra-long	52	EA	\$410.67	\$21,355	52	46.0	(6.0)	46	EA	\$410.67	\$18,891
Appendix F	Floor 1&A Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	1402-342	Storage, Unlocked	76	EA	\$505.99	\$38,455	76	68.0	(8.0)	68	EA	\$505.99	\$34,457
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Single	Furniture	Thurston Manufacturing	1402-342	Storage, Unlocked	104	EA	\$505.99	\$52,623	104	92.0	(12.0)	80	EA	\$505.99	\$40,477
Appendix F	Floor 1&A Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	H45M-M1-499-B-SPY	Bed	512	EA	\$723.77	\$370,589	512	460.0	(50.0)	460	EA	\$723.77	\$322,032
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	H45M-M1-499-B-SPY	Bed	708	EA	\$723.77	\$512,427	708	637.2	(71.0)	637	EA	\$723.77	\$461,040
Appendix F	Floor 1&A Housing	Room 005 Bedroom Double	Furniture	Saunders Education	702-8012	Chair, 2 Position	512	EA	\$246.92	\$126,445	512	460.0	(50.0)	460	EA	\$246.92	\$110,301
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Double	Furniture	Saunders Education	702-8012	Chair, 2 Position	708	EA	\$246.92	\$174,032	708	637.2	(71.0)	637	EA	\$246.92	\$122,269
Appendix F	Floor 1&A Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	F-01133-45	Desk, Writing	512	EA	\$205.47	\$105,043	512	460.0	(50.0)	460	EA	\$205.47	\$94,718
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	F-01133-45	Desk, Writing	708	EA	\$205.47	\$143,036	708	637.2	(71.0)	637	EA	\$205.47	\$124,727
Appendix F	Floor 1&A Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	3647-3880	Mattress, twin extra-long	512	EA	\$410.67	\$210,261	512	460.0	(50.0)	460	EA	\$410.67	\$188,306
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	3647-3880	Mattress, twin extra-long	708	EA	\$410.67	\$290,751	708	637.2	(71.0)	637	EA	\$410.67	\$259,594
Appendix F	Floor 1&A Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	1402-342	Storage, Unlocked	1024	EA	\$505.99	\$518,134	1024	921.6	(100.0)	921	EA	\$505.99	\$466,017
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Double	Furniture	Thurston Manufacturing	1402-342	Storage, Unlocked	1416	EA	\$505.99	\$715,463	1416	1274.4	(158.0)	1274	EA	\$505.99	\$644,032
Appendix F	Floor 1&A Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	H45M-M1-499-B-SPY	Bed	160	EA	\$723.77	\$115,822	160	145.0	(15.0)	145	EA	\$723.77	\$117,116
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	H45M-M1-499-B-SPY	Bed	225	EA	\$723.77	\$162,849	225	202.0	(23.0)	202	EA	\$723.77	\$146,203
Appendix F	Floor 1&A Housing	Room 005 Bedroom Triple	Furniture	Saunders Education	702-8012	Chair, 2 Position	160	EA	\$246.92	\$39,507	160	145.0	(15.0)	145	EA	\$246.92	\$35,440
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Triple	Furniture	Saunders Education	702-8012	Chair, 2 Position	225	EA	\$246.92	\$55,558	225	202.0	(23.0)	202	EA	\$246.92	\$49,481
Appendix F	Floor 1&A Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	F-01133-45	Desk, Writing	160	EA	\$205.47	\$32,875	160	145.0	(15.0)	145	EA	\$205.47	\$29,775
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	F-01133-45	Desk, Writing	225	EA	\$205.47	\$46,233	225	202.0	(23.0)	202	EA	\$205.47	\$40,146
Appendix F	Floor 1&A Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	3647-3880	Mattress, twin extra-long	160	EA	\$410.67	\$65,707	160	145.0	(15.0)	145	EA	\$410.67	\$60,776
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	3647-3880	Mattress, twin extra-long	225	EA	\$410.67	\$92,403	225	202.0	(23.0)	202	EA	\$410.67	\$82,094
Appendix F	Floor 1&A Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	1402-342	Storage, Unlocked	320	EA	\$505.99	\$162,517	320	287.2	(32.0)	287	EA	\$505.99	\$160,278
Appendix F	Floor 3&B.C.D Housing	Room 005 Bedroom Triple	Furniture	Thurston Manufacturing	1402-342	Storage, Unlocked	450	EA	\$505.99	\$227,696	450	405.0	(45.0)	405	EA	\$505.99	\$204,338
Appendix F	Floor 2&A Mixed Research	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	32	EA	\$470.22	\$15,047	32	28.0	(4.0)	28	EA	\$470.22	\$13,166
Appendix F	Floor 2&B Computational	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	24	EA	\$470.22	\$11,280	24	21.0	(3.0)	21	EA	\$470.22	\$9,870
Appendix F	Floor 3&A Research	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	24	EA	\$470.22	\$11,280	24	21.0	(3.0)	21	EA	\$470.22	\$9,870
Appendix F	Floor 3&A ACAD Lead Enrollment	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	24	EA	\$470.22	\$11,280	24	21.0	(3.0)	21	EA	\$470.22	\$9,870
Appendix F	Floor 3&A Wellness/Aquatics	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	8	EA	\$470.22	\$3,762	8	7.2	(1.0)	7	EA	\$470.22	\$3,320
Appendix F	Floor 2&A Mixed Research	Room 006 Break Room/Kitchenette	Appliance	GE	J6001100000	Microwave, Generic (Built-in)	4	EA	\$669.27	\$2,677	4	3.0	(1.0)	3	EA	\$669.27	\$2,007
Appendix F	Floor 2&B Computational	Room 006 Break Room/Kitchenette	Appliance	GE	J6001100000	Microwave, Generic (Built-in)	3	EA	\$669.27	\$2,008	3	2.7	(0.3)	3	EA	\$669.27	\$2,007
Appendix F	Floor 3&A Research	Room 006 Break Room/Kitchenette	Appliance	GE	J6001100000	Microwave, Generic (Built-in)	3	EA	\$669.27	\$2,008	3	2.7	(0.3)	3	EA	\$669.27	\$2,007
Appendix F	Floor 3&A ACAD Lead Enrollment	Room 006 Break Room/Kitchenette	Appliance	GE	J6001100000	Microwave, Generic (Built-in)	3	EA	\$669.27	\$2,008	3	2.7	(0.3)	3	EA	\$669.27	\$2,007
Appendix F	Floor 3&A Wellness/Aquatics	Room 006 Break Room/Kitchenette	Appliance	GE	J6001100000	Microwave, Generic (Built-in)	1	EA	\$669.27	\$669	1	0.9	0.0	1	EA	\$669.27	\$669
Appendix F	Floor 2&A Mixed Research	Room 006 Break Room/Kitchenette	Appliance	GE	GE16C79999	Refrigerator, Generic	4	EA	\$1,549.12	\$6,196	4	3.0	(1.0)	3	EA	\$1,549.12	\$4,647
Appendix F	Floor 2&B Computational	Room 006 Break Room/Kitchenette	Appliance	GE	GE16C79999	Refrigerator, Generic	3	EA	\$1,549.12	\$4,647	3	2.7	(0.3)	3	EA	\$1,549.12	\$4,647
Appendix F	Floor 3&A Research	Room 006 Break Room/Kitchenette	Appliance	GE	GE16C79999	Refrigerator, Generic	3	EA	\$1,549.12	\$4,647	3	2.7	(0.3)	3	EA	\$1,549.12	\$4,647
Appendix F	Floor 3&A ACAD Lead Enrollment	Room 006 Break Room/Kitchenette	Appliance	GE	GE16C79999	Refrigerator, Generic	3	EA	\$1,549.12	\$4,647	3	2.7	(0.3)	3	EA	\$1,549.12	\$4,647
Appendix F	Floor 3&A Wellness/Aquatics	Room 006 Break Room/Kitchenette	Appliance	GE	GE16C79999	Refrigerator, Generic	1	EA	\$1,549.12	\$1,549	1	0.9	0.0	1	EA	\$1,549.12	\$1,549
Appendix F	Floor 2&A Mixed Research	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	16	EA	\$1,147.72	\$18,363	16	14.4	(1.6)	14	EA	\$1,147.72	\$16,768
Appendix F	Floor 2&B Computational	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	12	EA	\$1,147.72	\$13,772	12	10.8	(1.2)	10	EA	\$1,147.72	\$11,417
Appendix F	Floor 3&A Research	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	12	EA	\$1,147.72	\$13,772	12	10.8	(1.2)	10	EA	\$1,147.72	\$11,417
Appendix F	Floor 3&A ACAD Lead Enrollment	Room 006 Break Room/Kitchenette	Furniture	Steelcase	W71110	Chair, Office	12	EA	\$1,147								

APPENDIX 19 - FF&E and Autoclave Equipment Costing

Source	Building	FF&E Package	Category	Manufacturer	Model Number	Item Description	Items & Quantities based on Original FF&E Cost				Items & Quantities based on D&C FF&E Cost					
							Orig. Qty	Unit	Unit Price	Cost	Orig. Qty	Delta	reduced Qty	Unit Price	Cost	
Appendix 7	Floor 3-F ECEC	Room 009 Classroom B, Chd	Children's Furniture	Community Playthings	4432	Teacher Chair 12"	8	EA	\$204.91	\$2,039.28	8	7.2 (10%)	7	EA	\$204.91	\$2,039.28
Appendix 7	Floor 3-F ECEC	Room 009 Classroom B, Chd	Children's Furniture	Community Playthings	7381	Toddler Book Display	4	EA	\$412.22	\$1,648.88	4	3.6 (90%)	4	EA	\$412.22	\$1,648.88
Appendix 7	Floor 3-F ECEC	Room 009 Classroom B, Chd	Children's Furniture	Community Playthings	7386	Table (36" x 48") with shadow shelves	4	EA	\$1,165.43	\$4,661.72	4	3.6 (90%)	4	EA	\$1,165.43	\$4,661.72
Appendix 7	Floor 3-F ECEC	Room 009 Classroom B, Chd	Children's Furniture	Community Playthings	4801	Round Table w/adjustable legs (round 4 pack)	4	EA	\$566.15	\$2,264.60	4	3.6 (90%)	4	EA	\$566.15	\$2,264.60
Appendix 7	Floor 3-A,B Housing	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71010	Chair, Office, Black with Casters	100	EA	\$470.22	\$47,022.00	100	172.6 (100.0%)	172	EA	\$470.22	\$80,976.00
Appendix 7	Floor 3-B,C,D Housing	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71010	Chair, Office, Black with Casters	96	EA	\$470.22	\$45,141.12	96	86.4 (100.0%)	96	EA	\$470.22	\$45,141.12
Appendix 7	Floor 3-F ECEC	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71010	Chair, Office, Black with Casters	24	EA	\$470.22	\$11,285.28	24	21.6 (100.0%)	21	EA	\$470.22	\$9,874.62
Appendix 7	Floor 3-G Conference Center	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71010	Chair, Office, Black with Casters	108	EA	\$470.22	\$50,783.76	108	151.2 (100.0%)	151	EA	\$470.22	\$71,004.00
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71010	Chair, Office, Black with Casters	216	EA	\$470.22	\$101,568.32	216	184.4 (100.0%)	184	EA	\$470.22	\$87,222.00
Appendix 7	Floor 3-A,B Housing	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71030AF	Conference (Priced as two 3P' Cabinets)	18	EA	\$1,340.23	\$24,144.18	18	14.4 (100.0%)	14	EA	\$1,340.23	\$18,763.00
Appendix 7	Floor 3-B,C,D Housing	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71030AF	Conference (Priced as two 3P' Cabinets)	8	EA	\$1,340.23	\$10,721.84	8	7.2 (100.0%)	7	EA	\$1,340.23	\$9,382.00
Appendix 7	Floor 3-F ECEC	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71030AF	Conference (Priced as two 3P' Cabinets)	2	EA	\$1,340.23	\$2,680.46	2	1.8 (90%)	2	EA	\$1,340.23	\$2,680.46
Appendix 7	Floor 3-G Conference Center	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71030AF	Conference (Priced as two 3P' Cabinets)	14	EA	\$1,340.23	\$18,763.00	14	12.6 (100.0%)	12	EA	\$1,340.23	\$16,083.00
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE71030AF	Conference (Priced as two 3P' Cabinets)	18	EA	\$1,340.23	\$24,144.18	18	16.2 (100.0%)	16	EA	\$1,340.23	\$21,444.00
Appendix 7	Floor 3-A,B Housing	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE72248LC	Table, Flip Top, 72", Instant Iron Patine Top, Mid Edge, State Base and Columns	86	EA	\$1,176.40	\$1,012,034.00	86	86.4 (100.0%)	86	EA	\$1,176.40	\$1,012,034.00
Appendix 7	Floor 3-B,C,D Housing	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE72248LC	Table, Flip Top, 72", Instant Iron Patine Top, Mid Edge, State Base and Columns	48	EA	\$1,176.40	\$56,467.20	48	43.2 (100.0%)	43	EA	\$1,176.40	\$50,580.00
Appendix 7	Floor 3-F ECEC	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE72248LC	Table, Flip Top, 72", Instant Iron Patine Top, Mid Edge, State Base and Columns	12	EA	\$1,176.40	\$14,117.12	12	10.8 (100.0%)	11	EA	\$1,176.40	\$12,940.00
Appendix 7	Floor 3-G Conference Center	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE72248LC	Table, Flip Top, 72", Instant Iron Patine Top, Mid Edge, State Base and Columns	84	EA	\$1,176.40	\$98,817.60	84	76.8 (100.0%)	75	EA	\$1,176.40	\$88,230.00
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 011 Conference Room 02-24 Seats	Furniture	Steelcase	NE72248LC	Table, Flip Top, 72", Instant Iron Patine Top, Mid Edge, State Base and Columns	108	EA	\$1,176.40	\$127,051.20	108	97.2 (100.0%)	97	EA	\$1,176.40	\$114,111.00
Appendix 7	Floor 2-A Mixed Research	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71110	Chair, Office	24	EA	\$470.22	\$11,285.28	24	21.6 (100.0%)	21	EA	\$470.22	\$9,874.62
Appendix 7	Floor 2-B Computational	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71110	Chair, Office	36	EA	\$470.22	\$16,927.92	36	32.4 (100.0%)	32	EA	\$470.22	\$15,047.00
Appendix 7	Floor 3-A Research	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71110	Chair, Office	84	EA	\$470.22	\$39,499.68	84	76.8 (100.0%)	75	EA	\$470.22	\$35,267.00
Appendix 7	Floor 3-B,C,D Housing	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71110	Chair, Office	24	EA	\$470.22	\$11,285.28	24	21.6 (100.0%)	21	EA	\$470.22	\$9,874.62
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	60	EA	\$470.22	\$28,213.20	60	54 (100.0%)	54	EA	\$470.22	\$25,393.00
Appendix 7	Floor 2-A Mixed Research	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	2	EA	\$1,340.23	\$2,680.46	2	1.8 (90%)	2	EA	\$1,340.23	\$2,680.46
Appendix 7	Floor 2-B Computational	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	3	EA	\$1,340.23	\$4,020.69	3	2.7 (90%)	3	EA	\$1,340.23	\$4,020.69
Appendix 7	Floor 3-A Research	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	7	EA	\$1,340.23	\$9,381.61	7	6.3 (100.0%)	6	EA	\$1,340.23	\$8,041.00
Appendix 7	Floor 3-B,C,D Housing	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	2	EA	\$1,340.23	\$2,680.46	2	1.8 (90%)	2	EA	\$1,340.23	\$2,680.46
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	5	EA	\$1,340.23	\$6,701.15	5	4.5 (100.0%)	4	EA	\$1,340.23	\$5,361.00
Appendix 7	Floor 2-A Mixed Research	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	E2C1248L	Table, Fixed 12", Instant Iron Patine Top, Mid Edge, State Base and Columns	2	EA	\$2,089.11	\$6,178.00	2	1.8 (90%)	2	EA	\$2,089.11	\$6,178.00
Appendix 7	Floor 2-B Computational	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	E2C1248L	Table, Fixed 12", Instant Iron Patine Top, Mid Edge, State Base and Columns	3	EA	\$2,089.11	\$6,267.33	3	2.7 (90%)	3	EA	\$2,089.11	\$6,267.33
Appendix 7	Floor 3-A Research	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	E2C1248L	Table, Fixed 12", Instant Iron Patine Top, Mid Edge, State Base and Columns	7	EA	\$2,089.11	\$14,623.77	7	6.3 (100.0%)	6	EA	\$2,089.11	\$12,534.00
Appendix 7	Floor 3-B,C,D Housing	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	E2C1248L	Table, Fixed 12", Instant Iron Patine Top, Mid Edge, State Base and Columns	2	EA	\$2,089.11	\$6,178.00	2	1.8 (90%)	2	EA	\$2,089.11	\$6,178.00
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 012 Conference Room 02-10-12 Seats	Furniture	Steelcase	E2C1248L	Table, Fixed 12", Instant Iron Patine Top, Mid Edge, State Base and Columns	5	EA	\$2,089.11	\$10,445.55	5	4.5 (100.0%)	4	EA	\$2,089.11	\$8,388.00
Appendix 7	Floor 2-A Mixed Research	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71110	Chair, Office	40	EA	\$470.22	\$18,808.80	40	36 (100.0%)	36	EA	\$470.22	\$16,928.00
Appendix 7	Floor 2-B Computational	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71110	Chair, Office	48	EA	\$470.22	\$22,631.16	48	43.2 (100.0%)	43	EA	\$470.22	\$20,220.00
Appendix 7	Floor 3-A Research	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71110	Chair, Office	104	EA	\$470.22	\$48,903.08	104	93.6 (100.0%)	93	EA	\$470.22	\$43,731.00
Appendix 7	Floor 3-B,C,D Housing	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71110	Chair, Office	32	EA	\$470.22	\$15,047.00	32	28.8 (100.0%)	28	EA	\$470.22	\$13,166.00
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71110	Chair, Office	16	EA	\$470.22	\$7,523.52	16	14.4 (100.0%)	14	EA	\$470.22	\$6,583.00
Appendix 7	Floor 2-A Mixed Research	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	5	EA	\$1,340.23	\$6,701.15	5	4.5 (100.0%)	5	EA	\$1,340.23	\$6,701.15
Appendix 7	Floor 2-B Computational	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	6	EA	\$1,340.23	\$8,041.80	6	5.4 (100.0%)	5	EA	\$1,340.23	\$6,701.15
Appendix 7	Floor 3-A Research	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	13	EA	\$1,340.23	\$17,423.00	13	11.7 (100.0%)	11	EA	\$1,340.23	\$14,743.00
Appendix 7	Floor 3-B,C,D Housing	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	4	EA	\$1,340.23	\$5,361.00	4	3.6 (100.0%)	3	EA	\$1,340.23	\$4,020.69
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	NE71130AF	Conference (Priced as two 3P' Cabinets)	2	EA	\$1,340.23	\$2,680.46	2	1.8 (90%)	2	EA	\$1,340.23	\$2,680.46
Appendix 7	Floor 2-A Mixed Research	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	E2C2048L	Table, Fixed 6", Instant Iron Patine Top, Mid Edge, State Base and Columns	5	EA	\$2,875.20	\$14,376.00	5	4.5 (100.0%)	5	EA	\$2,875.20	\$14,376.00
Appendix 7	Floor 2-B Computational	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	E2C2048L	Table, Fixed 6", Instant Iron Patine Top, Mid Edge, State Base and Columns	6	EA	\$2,875.20	\$17,251.20	6	5.4 (100.0%)	5	EA	\$2,875.20	\$14,376.00
Appendix 7	Floor 3-A Research	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	E2C2048L	Table, Fixed 6", Instant Iron Patine Top, Mid Edge, State Base and Columns	13	EA	\$2,875.20	\$37,397.60	13	11.7 (100.0%)	11	EA	\$2,875.20	\$31,397.00
Appendix 7	Floor 3-B,C,D Housing	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	E2C2048L	Table, Fixed 6", Instant Iron Patine Top, Mid Edge, State Base and Columns	4	EA	\$2,875.20	\$11,500.80	4	3.6 (100.0%)	3	EA	\$2,875.20	\$8,626.00
Appendix 7	Floor 3-H ACAD Lead-Enrollment	Room 013 Conference Room 01-8 Seats	Furniture	Steelcase	E2C2048L	Table, Fixed 6", Instant Iron Patine Top, Mid Edge, State Base and Columns	2	EA	\$2,875.20	\$5,750.40	2	1.8 (90%)	2	EA	\$2,875.20	\$5,750.40
Appendix 7	Floor 1-A,B Housing	Room 014 Classroom, Control	Stamps	ULINE	H-1632	Black, Steel	2	EA	\$857.37	\$1,714.74	2	1.8 (90%)	2	EA	\$857.37	\$1,714.74
Appendix 7	Floor 3-B,C,D Housing	Room 014 Classroom, Control	Stamps	ULINE	H-1632	Black, Steel	6	EA	\$857.37	\$5,144.22	6	5.4 (100.0%)	5	EA	\$857.37	\$4,286.22
Appendix 7	Floor 3-F ECEC	Room 014 Classroom, Control	Stamps	ULINE	H-1632	Black, Steel	1	EA	\$857.37	\$857.37	1	0.9 (90%)	1	EA	\$857.37	\$857.37
Appendix 7	Floor 3-A Wellness/Aquatics/Arts	Room 017 Exam Room	Furniture	Steelcase	NE71110	Chair, Office	10	EA	\$470.22	\$4,702.20	10	12.6 (100.0%)	13	EA	\$470.22	\$6,112.00
Appendix 7	Floor 3-A Wellness/Aquatics	Room 017 Exam Room	Medical Equipment	Ergotron	D501-31002	Computer chairing station and vital station height	15	EA	\$2,424.56	\$36,368.40	15	12.6 (100.0%)	13	EA	\$2,424.56	\$31,520.00
Appendix 7	Floor 3-A Wellness/Aquatics	Room 017 Exam Room	Medical Equipment	Manok	Waver 270	Steel, Exam, height adjustable, wheeled	15	EA	\$243.49	\$3,652.35	15	12.6 (100.0%)	13	EA	\$243.49	\$3,152.00
Appendix 7	Floor 3-A Wellness/Aquatics	Room 017 Exam Room	Medical Equipment	Manok	Waver 270	Table, Exam	15	EA	\$24,811.22	\$372,168.30	15	12.6 (100.0%)	13	EA	\$24,811.22	\$322,348.00
Appendix 7	Floor 3-A Research	Room 018 Research Laboratory 15 Greenhouse	Storage	ULine	H-2216	Cabinet - 2 door 6H - locking 30"x49"x12"	1	EA	\$601.75	\$601.75	1	0.9 (90%)	2	EA	\$601.75	\$1,203.50
Appendix 7	Floor 3-A Research	Room 018 Research Laboratory 15 Greenhouse	Lab Equipment	Corning	21000	Dormition Chamber	8	EA	\$41,842.97	\$335,058.00	8	5.4 (100.0%)	6	EA	\$41,842.97	\$251,058.00
Appendix 7	Floor 3-A Research	Room 018 Research Laboratory 15 Greenhouse	Lab Equipment	Corning	A1000	Scintillation Chamber	6	EA	\$45,056.26	\$270,338.00	6	5.4 (100.0%)	6	EA	\$45,056.26	\$270,338.00
Appendix 7	Floor 3-A Research	Room 018 Research Laboratory 15 Greenhouse	Furniture	Studer Education	708-0288	Table	2	EA	\$1,314.76	\$2,629.52	2	1.8 (90%)	2	EA	\$1,314.76	\$2,629.52
Appendix 7	Floor 3-A Research	Room 019 Group Therapy, CAPS	Furniture	Manok	385	Chair, Lounge	24	EA	\$1,726.62	\$41,438.88	24	21.6 (100.0%)	22	EA	\$1,726.62	\$37,986.00
Appendix 7	Floor 3-A Wellness/Aquatics/Arts	Room 019 Group Therapy, CAPS	Furniture	Steelcase	MPR93072	Table, general (2" Folding)	4	EA	\$246.86	\$987.44	4	3.6 (100.0%)	4	EA	\$246.86	\$987.44
Appendix 7	Floor 3-A Wellness/Aquatics/Arts	Room 019 Group Therapy, CAPS	Furniture	Steelcase	CO200000000	Table, Side	2	EA	\$867.16	\$1,734.32	2	1.8 (90%)	2	EA	\$867.16	\$1,734.32
Appendix 7	Floor 3-A Wellness/Aquatics/Arts	Room 020 Group Therapy, Other	Furniture	Steelcase	385	Chair, Lounge	12	EA	\$1,726.62	\$20,719.44	12	10.8 (100.0%)	10	EA	\$1,726.62	\$17,266.00
Appendix 7	Floor 3-B,C,D Housing	Room 021 Information Desk	Furniture	ULine	H-2842	Chair, Office, general	1	EA	\$377.12	\$377.12	1	0.9 (90%)	1	EA	\$377.12	\$377.12
Appendix 7	Floor 3-B,C,D Housing	Room 021 Information Desk	Furniture	Steelcase	7-588	Workstation with Postcard	1	EA	\$2,267.73	\$2,267.73	1	0.9 (90%)	1	EA	\$2,267.73	\$2,267.73
Appendix 7	Floor 3-A Wellness/Aquatics/Arts	Room 022 Intra-Confidential														

APPENDIX 19 - FF&E and Autoclave Equipment Costing

										Items & Quantities based on Original FF&E Cost				Items & Quantities based on D&C FF&E Cost			
Source	Building	FF&E Package	Category	Manufacturer	Model Number	Item Description	Orig. Qty	Unit	Unit Price	Cost	Orig. Qty	Delta	reduced Qty	Unit	Unit Price	Cost	
Appendix 7	Floor 3-B.C.D Housing	Room 032 Staging	Lab Equipment	TBD	T9P81176825	Cylinder Rack	1	EA	\$1,168.28	\$1,168	1	0.0	0.00	1	EA	\$1,168.28	\$1,168
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 032 Staging	Lab Equipment	TBD	T9P81176825	Cylinder Rack	1	EA	\$1,168.28	\$1,168	1	0.0	0.00	1	EA	\$1,168.28	\$1,168
Appendix 7	Floor 2-A Mseal Research	Room 032 Staging	Industrial Equipment	Uline	N-3318	Shelf / Actual color	4	EA	\$191.85	\$727	4	3.6	0.00	4	EA	\$191.85	\$727
Appendix 7	Floor 2-A Research	Room 032 Staging	Industrial Equipment	Uline	N-3318	Shelf / Actual color	4	EA	\$191.85	\$727	4	3.6	0.00	4	EA	\$191.85	\$727
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 032 Staging	Industrial Equipment	Uline	N-3318	Shelf / Actual color	4	EA	\$191.85	\$727	4	3.6	0.00	4	EA	\$191.85	\$727
Appendix 7	Floor 2-A Mseal Research	Room 032 Staging	Industrial Equipment	Uline	N-1943	Pallet Jack, 2 Ton	2	EA	\$624.86	\$1,250	2	1.6	0.00	2	EA	\$624.86	\$1,250
Appendix 7	Floor 2-A Research	Room 032 Staging	Industrial Equipment	Uline	N-1943	Pallet Jack, 2 Ton	2	EA	\$624.86	\$1,250	2	1.6	0.00	2	EA	\$624.86	\$1,250
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 032 Staging	Industrial Equipment	Uline	N-1943	Pallet Jack, 2 Ton	2	EA	\$624.86	\$1,250	2	1.6	0.00	2	EA	\$624.86	\$1,250
Appendix 7	Floor 2-A Mseal Research	Room 032 Staging	Furniture	Steelcase	886303	Table, Work	2	EA	\$823.48	\$1,047	2	1.8	0.00	2	EA	\$823.48	\$1,047
Appendix 7	Floor 2-A Research	Room 032 Staging	Furniture	Steelcase	886303	Table, Work	2	EA	\$823.48	\$1,047	2	1.8	0.00	2	EA	\$823.48	\$1,047
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 032 Staging	Furniture	Steelcase	886303	Table, Work	2	EA	\$823.48	\$1,047	2	1.8	0.00	2	EA	\$823.48	\$1,047
Appendix 7	Floor 3-B.C.D Housing	Room 033 Lobby / Queueing	Furniture	Sauder Education	705-0288	Table	1	EA	\$1,314.75	\$1,315	1	0.0	0.00	1	EA	\$1,314.75	\$1,315
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 033 Lobby / Queueing	Furniture	Sauder Education	705-0288	Table	1	EA	\$1,314.75	\$1,315	1	0.0	0.00	1	EA	\$1,314.75	\$1,315
Appendix 7	Floor 1-A.B Housing	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	36	EA	\$1,726.62	\$62,156	36	35.4	(4455)	32	EA	\$1,726.62	\$55,252
Appendix 7	Floor 2-A Mseal Research	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	16	EA	\$1,726.62	\$27,626	16	14.4	(2250)	14	EA	\$1,726.62	\$24,173
Appendix 7	Floor 2-B Computational	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	8	EA	\$1,726.62	\$13,813	8	7.2	(1050)	7	EA	\$1,726.62	\$12,086
Appendix 7	Floor 2-A Research	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	12	EA	\$1,726.62	\$20,719	12	10.8	(2550)	10	EA	\$1,726.62	\$17,286
Appendix 7	Floor 3-B.C.D Housing	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	36	EA	\$1,726.62	\$62,156	36	35.4	(4455)	32	EA	\$1,726.62	\$55,252
Appendix 7	Floor 3-G Conference Center	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	4	EA	\$1,726.62	\$6,906	4	3.6	0.00	4	EA	\$1,726.62	\$6,906
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	16	EA	\$1,726.62	\$27,626	16	14.4	(2250)	14	EA	\$1,726.62	\$24,173
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 034 Lobby	Furniture	Steelcase	385	Chair, Lounge	16	EA	\$1,726.62	\$27,626	16	14.4	(2250)	14	EA	\$1,726.62	\$24,173
Appendix 7	Floor 1-A.B Housing	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	8	EA	\$4,211.16	\$33,689	8	8.1	(1080)	8	EA	\$4,211.16	\$33,689
Appendix 7	Floor 2-A Mseal Research	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	4	EA	\$4,211.16	\$16,846	4	3.6	0.00	4	EA	\$4,211.16	\$16,846
Appendix 7	Floor 2-B Computational	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	3	EA	\$4,211.16	\$12,633	3	2.7	0.00	3	EA	\$4,211.16	\$12,633
Appendix 7	Floor 2-A Research	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	3	EA	\$4,211.16	\$12,633	3	2.7	0.00	3	EA	\$4,211.16	\$12,633
Appendix 7	Floor 3-B.C.D Housing	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	9	EA	\$4,211.16	\$37,899	9	8.1	(1080)	8	EA	\$4,211.16	\$33,689
Appendix 7	Floor 3-G Conference Center	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	1	EA	\$4,211.16	\$4,211	1	0.9	0.00	1	EA	\$4,211.16	\$4,211
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	4	EA	\$4,211.16	\$16,846	4	3.6	0.00	4	EA	\$4,211.16	\$16,846
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 034 Lobby	Furniture	Steelcase	385-70	Couch, Adul	4	EA	\$4,211.16	\$16,846	4	3.6	0.00	4	EA	\$4,211.16	\$16,846
Appendix 7	Floor 1-A.B Housing	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	9	EA	\$1,032.25	\$9,290	9	8.1	(1080)	8	EA	\$1,032.25	\$8,288
Appendix 7	Floor 2-A Mseal Research	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	4	EA	\$1,032.25	\$4,129	4	3.6	0.00	4	EA	\$1,032.25	\$4,129
Appendix 7	Floor 2-B Computational	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	2	EA	\$1,032.25	\$2,065	2	1.8	0.00	2	EA	\$1,032.25	\$2,065
Appendix 7	Floor 2-A Research	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	3	EA	\$1,032.25	\$3,097	3	2.7	0.00	3	EA	\$1,032.25	\$3,097
Appendix 7	Floor 3-B.C.D Housing	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	9	EA	\$1,032.25	\$9,290	9	8.1	(1080)	8	EA	\$1,032.25	\$8,288
Appendix 7	Floor 3-G Conference Center	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	1	EA	\$1,032.25	\$1,032	1	0.9	0.00	1	EA	\$1,032.25	\$1,032
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	4	EA	\$1,032.25	\$4,129	4	3.6	0.00	4	EA	\$1,032.25	\$4,129
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 034 Lobby	Furniture	Steelcase	COCC08F836L	Table, Coffee	4	EA	\$1,032.25	\$4,129	4	3.6	0.00	4	EA	\$1,032.25	\$4,129
Appendix 7	Floor 1-A.B Housing	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	16	EA	\$867.16	\$17,495	16	16.2	(2550)	16	EA	\$867.16	\$15,475
Appendix 7	Floor 2-A Mseal Research	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	8	EA	\$867.16	\$7,727	8	7.2	(1050)	7	EA	\$867.16	\$6,770
Appendix 7	Floor 2-B Computational	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	4	EA	\$867.16	\$3,469	4	3.6	0.00	4	EA	\$867.16	\$3,469
Appendix 7	Floor 2-A Research	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	6	EA	\$867.16	\$5,805	6	5.4	(750)	5	EA	\$867.16	\$4,626
Appendix 7	Floor 3-B.C.D Housing	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	16	EA	\$867.16	\$17,495	16	16.2	(2550)	16	EA	\$867.16	\$15,475
Appendix 7	Floor 3-G Conference Center	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	2	EA	\$867.16	\$1,734	2	1.8	(250)	1	EA	\$867.16	\$867
Appendix 7	Floor 3-4 ACAD Lead-Enrollment	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	8	EA	\$867.16	\$7,727	8	7.2	(1050)	7	EA	\$867.16	\$6,770
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 034 Lobby	Furniture	Steelcase	COCC08G220H	Table, Side	8	EA	\$867.16	\$7,727	8	7.2	(1050)	7	EA	\$867.16	\$6,770
Appendix 7	Floor 3-4 Wellness/Aquatics	Room 037 Lockers: Athletics - Aquatics - AQUATICS	Storage	Subzero	77786-027	Binch (Includes Pedestal)	8	EA	\$524.33	\$4,195	8	7.2	(1050)	7	EA	\$524.33	\$3,740
Appendix 7	Floor 3-4 Wellness/Aquatics	Room 037 Lockers: Athletics - Aquatics - AQUATICS	Abilities Equipment	Subzero	Subzero	Dryer, Ball	4	EA	\$3,307.80	\$13,231	4	3.6	0.00	4	EA	\$3,307.80	\$13,231
Appendix 7	Floor 3-4 Wellness/Aquatics	Room 037 Lockers: SD: Public - AQUATICS	Storage	Subzero	77786-027	Binch (Includes Pedestal)	16	EA	\$524.33	\$8,389	16	14.4	(2250)	14	EA	\$524.33	\$7,461
Appendix 7	Floor 3-4 Wellness/Aquatics	Room 037 Lockers: SD: Public - AQUATICS	Abilities Equipment	Subzero	Subzero	Dryer, Ball	8	EA	\$3,307.80	\$26,462	8	7.2	(1050)	7	EA	\$3,307.80	\$23,155
Appendix 7	Floor 2-A, Athletics: Padel	Room 033 Lockers: Athletics - Team	Storage	Subzero	77786-027	Binch (Includes Pedestal)	8	EA	\$524.33	\$4,195	8	7.2	(1050)	7	EA	\$524.33	\$3,740
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 033 Lockers: Athletics - Team	Furniture	Steelcase	CE204043	Wardboard	2	EA	\$408.01	\$816	2	1.8	0.00	2	EA	\$408.01	\$816
Appendix 7	Floor 1-A.B Housing	Room 040 Lounge	Furniture	Steelcase	385	Chair, Lounge	108	EA	\$1,726.62	\$186,478	108	97.2	(11400)	97	EA	\$1,726.62	\$167,462
Appendix 7	Floor 3-B.C.D Housing	Room 040 Lounge	Furniture	Steelcase	385	Chair, Lounge	136	EA	\$1,726.62	\$234,821	136	122.4	(14400)	122	EA	\$1,726.62	\$210,948
Appendix 7	Floor 1-A.B Housing	Room 040 Lounge	Furniture	Steelcase	395-60	Loveseat, Sof	94	EA	\$3,255.63	\$305,804	94	46.8	(6050)	48	EA	\$3,255.63	\$156,270
Appendix 7	Floor 3-B.C.D Housing	Room 040 Lounge	Furniture	Steelcase	395-60	Loveseat, Sof	68	EA	\$3,255.63	\$221,383	68	61.2	(7500)	61	EA	\$3,255.63	\$198,003
Appendix 7	Floor 1-A.B Housing	Room 040 Lounge	Furniture	Steelcase	COCC08G220H	Table, Side	108	EA	\$867.16	\$104,453	108	97.2	(11400)	97	EA	\$867.16	\$103,814
Appendix 7	Floor 3-B.C.D Housing	Room 040 Lounge	Furniture	Steelcase	COCC08G220H	Table, Side	136	EA	\$867.16	\$117,933	136	122.4	(14400)	122	EA	\$867.16	\$117,393
Appendix 7	Floor 2-A Mseal Research	Room 041 Classroom Laboratory: Maker Space	Classroom Equipment	Melroe	MP0825	3-D Printer	1	EA	\$5,026.98	\$5,027	1	0.9	(1050)	0	EA	\$5,026.98	\$0
Appendix 7	Floor 2-A Mseal Research	Room 041 Classroom Laboratory: Maker Space	Furniture	Steelcase	46711-0	Chair, Office	15	EA	\$470.22	\$7,053	15	13.5	(2550)	13	EA	\$470.22	\$6,113
Appendix 7	Floor 2-A Mseal Research	Room 041 Classroom Laboratory: Maker Space	Classroom Equipment	F&L Spectrum Laser	lasercolor	Laser Color	1	EA	\$6,374.49	\$6,374	1	0.9	(1050)	0	EA	\$6,374.49	\$0
Appendix 7	Floor 2-A Mseal Research	Room 041 Classroom Laboratory: Maker Space	Classroom Equipment	Signa Shopper	17355	3D Printer	1	EA	\$2,539.61	\$2,540	1	0.9	(1050)	0	EA	\$2,539.61	\$0
Appendix 7	Floor 1-A.B Housing	Room 042 Multi-Purpose	Furniture	Steelcase	4720	Chair Transport & Storage Daily	4	EA	\$218.96	\$1,276	4	3.6	0.00	4	EA	\$218.96	\$1,276
Appendix 7	Floor 3-B.C.D Housing	Room 042 Multi-Purpose	Furniture	Steelcase	4720	Chair Transport & Storage Daily	4	EA	\$218.96	\$1,276	4	3.6	0.00	4	EA	\$218.96	\$1,276
Appendix 7	Floor 1-A.B Housing	Room 042 Multi-Purpose	Furniture	Steelcase	273410N	Chair, Stacking	120	EA	\$129.25	\$15,510	120	108	(12400)	108	EA	\$129.25	\$13,259
Appendix 7	Floor 3-B.C.D Housing	Room 042 Multi-Purpose	Furniture	Steelcase	273410N	Chair, Stacking	120	EA	\$129.25	\$15,510	120	108	(12400)	108	EA	\$129.25	\$13,259
Appendix 7	Floor 1-A.B Housing	Room 042 Multi-Purpose	Furniture	Steelcase	467720M-C	Table, Flip Top, 12' Instant Inn Patio Top, Mat Edge, Side Rail and Columns	32	EA	\$1,176.40	\$37,648	32	28.8	(4050)	28	EA	\$1,176.40	\$33,276
Appendix 7	Floor 3-B.C.D Housing	Room 042 Multi-Purpose	Furniture	Steelcase	467720M-C	Table, Flip Top, 12' Instant Inn Patio Top, Mat Edge, Side Rail and Columns	32	EA	\$1,176.40	\$37,648	32	28.8	(4050)	28	EA	\$1,176.40	\$33,276
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 043 Nursing Area	Furniture	Steelcase	455003	Chair, Office	8	EA	\$773.30	\$6,186	8	7.2	(1050)	7	EA	\$773.30	\$6,413
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 044 Office: Counseling (CAPS)	Furniture	Steelcase	98C11035A	Recliner, 5-shelf, Mat (Optional - Can be swapped for T5 5-drawer lateral file)	10	EA	\$592.03	\$5,920	10	9	(1050)	9	EA	\$592.03	\$5,306
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 044 Office: Counseling (CAPS)	Furniture	Steelcase	473415M	Chair, Guest, Legarm Midrange	20	EA	\$260.02	\$5,200	20	18	(2400)	18	EA	\$260.02	\$4,680
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 044 Office: Counseling (CAPS)	Furniture	Steelcase	455003	Chair, Office	10	EA	\$773.30	\$7,733	10	9	(1050)	9	EA	\$773.30	\$8,080
Appendix 7	Floor 3-4 Wellness/Aquatics/Arts	Room 044 Office: Counseling (CAPS)	Furniture	Steelcase	ATROG08220U	Desk, Adjustable Height, State (Optional desk chairs)	10	EA	\$1,886.98	\$18,870	10	9	(1050)	9	EA	\$1,886.98	\$15,183
Appendix 7	Floor 3-4																

APPENDIX 19 - FF&E and Autoclave Equipment Costing

										Items & Quantities based on Original FF&E Cost				Items & Quantities based on D&C FF&E Cost					
Source	Building	FF&E Package	Category	Manufacturer	Model Number	Item Description	Orig. Qty	Unit	Unit Price	Cost	Orig. Qty	Delta	reduced Qty	Unit	Unit Price	Cost			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	93	EA	\$1,787.20	\$166,110	83	80.7	(10.00)	EA	\$1,787.20	\$148,138			
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	7	EA	\$1,787.20	\$12,510	7	0	(0.00)	EA	\$1,787.20	\$12,510			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	9	EA	\$1,787.20	\$16,085	9	0	(0.00)	EA	\$1,787.20	\$16,085			
Appendix 7	Floor 1-A,B Housing	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	1	EA	\$243.87	\$243.87	1	0	(0.00)	EA	\$243.87	\$243.87			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	62	EA	\$243.87	\$15,158	52	48.8	(0.00)	EA	\$243.87	\$12,718			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	65	EA	\$243.87	\$15,855	55	36.5	(0.00)	EA	\$243.87	\$13,544			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	93	EA	\$243.87	\$22,680	83	80.7	(10.00)	EA	\$243.87	\$20,241			
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	7	EA	\$243.87	\$1,737	7	0	(0.00)	EA	\$243.87	\$1,737			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	9	EA	\$243.87	\$2,195	9	0	(0.00)	EA	\$243.87	\$2,195			
Appendix 7	Floor 1-A,B Housing	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	2	EA	\$248.76	\$498	2	0	(0.00)	EA	\$248.76	\$498			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	104	EA	\$248.76	\$25,871	104	30.8	(11.00)	EA	\$248.76	\$25,138			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	130	EA	\$248.76	\$32,339	130	117	(11.00)	EA	\$248.76	\$32,105			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	188	EA	\$248.76	\$46,270	188	167.4	(11.00)	EA	\$248.76	\$45,944			
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	14	EA	\$248.76	\$3,483	14	12.8	(0.00)	EA	\$248.76	\$3,585			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	18	EA	\$248.76	\$4,478	18	16.2	(0.00)	EA	\$248.76	\$4,500			
Appendix 7	Floor 1-A,B Housing	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	1	EA	\$193.56	\$194	1	0	(0.00)	EA	\$193.56	\$194			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	52	EA	\$193.56	\$10,065	52	46.8	(0.00)	EA	\$193.56	\$10,064			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	65	EA	\$193.56	\$12,581	55	36.5	(0.00)	EA	\$193.56	\$10,685			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	93	EA	\$193.56	\$18,001	83	80.7	(10.00)	EA	\$193.56	\$16,000			
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	7	EA	\$193.56	\$1,355	7	0	(0.00)	EA	\$193.56	\$1,351			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	9	EA	\$193.56	\$1,742	9	0	(0.00)	EA	\$193.56	\$1,741			
Appendix 7	Floor 1-A,B Housing	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	2	EA	\$857.80	\$1,716	2	0	(0.00)	EA	\$857.80	\$1,716			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	104	EA	\$857.80	\$89,421	104	30.8	(11.00)	EA	\$857.80	\$89,184			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	130	EA	\$857.80	\$111,527	130	117	(11.00)	EA	\$857.80	\$111,291			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	188	EA	\$857.80	\$161,289	188	167.4	(11.00)	EA	\$857.80	\$160,989			
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	14	EA	\$857.80	\$11,911	14	12.8	(0.00)	EA	\$857.80	\$12,039			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	18	EA	\$857.80	\$15,440	18	16.2	(0.00)	EA	\$857.80	\$15,528			
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	088710326A	Recessed, 5-shelf, Mid (Optional - Can be swapped for TS 5-drawer lateral file)	4	EA	\$550.33	\$2,202	4	0	(0.00)	EA	\$550.33	\$2,202			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	4	EA	\$250.52	\$1,002	4	0	(0.00)	EA	\$250.52	\$1,002			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	0544000	Chair, Office	2	EA	\$773.30	\$1,547	2	0	(0.00)	EA	\$773.30	\$1,547			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	2	EA	\$1,088.08	\$2,176	2	0	(0.00)	EA	\$1,088.08	\$2,176			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	2	EA	\$1,787.20	\$3,574	2	0	(0.00)	EA	\$1,787.20	\$3,574			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	02000001	Fabric covered task board, State	2	EA	\$243.87	\$488	2	0	(0.00)	EA	\$243.87	\$488			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	4	EA	\$248.76	\$995	4	0	(0.00)	EA	\$248.76	\$995			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	2	EA	\$193.56	\$387	2	0	(0.00)	EA	\$193.56	\$387			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Office, Private - AQUATICS	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	4	EA	\$857.80	\$3,432	4	0	(0.00)	EA	\$857.80	\$3,432			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	088710326A	Recessed, 5-shelf, Mid (Optional - Can be swapped for TS 5-drawer lateral file)	132	EA	\$550.33	\$72,767	132	118.8	(14.00)	EA	\$550.33	\$72,986			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	088710326A	Recessed, 5-shelf, Mid (Optional - Can be swapped for TS 5-drawer lateral file)	108	EA	\$550.33	\$59,437	108	97.2	(11.00)	EA	\$550.33	\$59,514			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	088710326A	Recessed, 5-shelf, Mid (Optional - Can be swapped for TS 5-drawer lateral file)	238	EA	\$550.33	\$131,168	238	205.2	(33.00)	EA	\$550.33	\$131,501			
Appendix 7	Floor 3-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	132	EA	\$250.52	\$33,069	132	118.8	(14.00)	EA	\$250.52	\$33,222			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	108	EA	\$250.52	\$27,152	108	97.2	(11.00)	EA	\$250.52	\$27,132			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	238	EA	\$250.52	\$59,124	238	205.2	(33.00)	EA	\$250.52	\$59,454			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	0544000	Chair, Office	65	EA	\$773.30	\$50,258	55	36.5	(0.00)	EA	\$773.30	\$42,628			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	0544000	Chair, Office	54	EA	\$773.30	\$41,758	54	46.8	(0.00)	EA	\$773.30	\$41,718			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	0544000	Chair, Office	114	EA	\$773.30	\$88,158	114	102.6	(12.00)	EA	\$773.30	\$87,877			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	65	EA	\$1,088.08	\$70,765	55	36.5	(0.00)	EA	\$1,088.08	\$59,512			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	54	EA	\$1,088.08	\$58,787	54	46.8	(0.00)	EA	\$1,088.08	\$58,275			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	0747034	Chair, Guest, Legless Midrange	114	EA	\$1,088.08	\$123,176	114	102.6	(12.00)	EA	\$1,088.08	\$122,572			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	96	EA	\$1,787.20	\$171,945	86	36.4	(0.00)	EA	\$1,787.20	\$153,445			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	34	EA	\$1,787.20	\$60,559	34	46.8	(0.00)	EA	\$1,787.20	\$62,788			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	114	EA	\$1,787.20	\$203,741	114	102.6	(12.00)	EA	\$1,787.20	\$202,205			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	86	EA	\$243.87	\$16,085	86	36.4	(0.00)	EA	\$243.87	\$14,288			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	54	EA	\$243.87	\$13,169	54	46.8	(0.00)	EA	\$243.87	\$11,758			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	134M24033	Desk, Free standing w/ double pedestals, Instant Iron Padloe	114	EA	\$243.87	\$27,801	114	102.6	(12.00)	EA	\$243.87	\$26,874			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	132	EA	\$248.76	\$32,837	132	118.8	(14.00)	EA	\$248.76	\$32,504			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	108	EA	\$248.76	\$26,867	108	97.2	(11.00)	EA	\$248.76	\$26,130			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	09L830F	Light, Task, LED w/ Fluorescent	238	EA	\$248.76	\$59,178	238	205.2	(33.00)	EA	\$248.76	\$58,887			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	65	EA	\$193.56	\$12,775	55	36.5	(0.00)	EA	\$193.56	\$11,420			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	54	EA	\$193.56	\$10,452	54	46.8	(0.00)	EA	\$193.56	\$10,291			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	13849K	Light, Undermount, LED or Fluorescent	114	EA	\$193.56	\$22,066	114	102.6	(12.00)	EA	\$193.56	\$19,743			
Appendix 7	Floor 2-A M&E Research	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	132	EA	\$857.80	\$113,842	132	118.8	(14.00)	EA	\$857.80	\$113,632			
Appendix 7	Floor 2-B Computational	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	108	EA	\$857.80	\$92,703	108	97.2	(11.00)	EA	\$857.80	\$92,416			
Appendix 7	Floor 3-A Research	Room 045 Office, Private	Furniture	Steelcase	08880	Overhead bin, Mid (Can be swapped for shelf)	238	EA	\$857.80	\$203,000	238	205.2	(33.00)	EA	\$857.80	\$202,665			
Appendix 7	Floor 3-A Wellness/Aquatics	Room 045 Pharmacy	Medical Equipment	WFO	8235	Chair, Critical Responder	2	EA	\$2,510.00	\$5,020	2	0	(0.00)	EA	\$2,510.00	\$5,020			
Appendix 7	Floor 3-A Wellness/Aquatics/Arts/Eds	Room 045 Pharmacy	Medical Equipment	Steelcase	0877110	Chair, wheeled, height adjustable	2	EA	\$872.44	\$1,745	2	0	(0.00)	EA	\$872.44	\$1,745			
Appendix 7	Floor 2-A M&E Research	Room 054 Colloquy Space	Furniture	Steelcase	385	Chair, Lounge	26	EA	\$1,726.62	\$44,945	26	26.2	(0.00)	EA	\$1,726.62	\$45,168			
Appendix 7	Floor 2-B Computational	Room 054 Colloquy Space	Furniture	Steelcase	385	Chair, Lounge	28	EA	\$1,726.62	\$48,345	28	26.2	(0.00)	EA	\$1,726.62	\$48,588			
Appendix 7	Floor 3-A Research	Room 054 Colloquy Space	Furniture	Steelcase	385	Chair, Lounge	12	EA	\$1,726.62	\$20,719	12	12.8	(0.00)	EA	\$1,726.62	\$21,246			
Appendix 7	Floor 2-A M&E Research	Room 054 Colloquy Space	Furniture	Steelcase	385-70	Chair, Adult	14	EA	\$4,211.16	\$58,956	14	12.8	(0.00)	EA	\$4,211.16	\$59,574			
Appendix 7	Floor 2-B Computational	Room 054 Colloquy Space	Furniture	Steelcase	385-70	Chair, Adult	14	EA	\$4,211.16	\$58,956	14	12.8	(0.00)	EA	\$4,211.16	\$59,574			
Appendix 7	Floor 3-A Research	Room 054 Colloquy Space	Furniture	Steelcase	385-70	Chair, Adult	6	EA	\$4,211.16	\$25,267	6	0	(0.00)	EA	\$4,211.16	\$25,266			
Appendix 7	Floor 2-A M&E Research																		

APPENDIX 19 - FF&E and Autoclave Equipment Costing

										Items & Quantities based on Original FF&E Cost				Items & Quantities based on D&C FF&E Cost				
Source	Building	FF&E Package	Category	Manufacturer	Model Number	Item Description	Orig. Qty	Unit	Unit Price	Cost	Orig. Qty	Unit	Unit Price	Cost	Orig. Qty	Unit	Unit Price	Cost
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	Lab Products	Super Mouse 1805	Recommender Systems, Mouse ICON	2	EA	\$85,072.25	\$160,144	2	EA	\$85,072.25	\$160,144	2	EA	\$85,072.25	\$160,144
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	Lab Products	One Cage 2108	Recommender Systems, Rat ICON	2	EA	\$85,072.25	\$160,144	2	EA	\$85,072.25	\$160,144	2	EA	\$85,072.25	\$160,144
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	Way	ED205	Barista Filling Bottle	1	EA	\$13,288.00	\$13,288	1	EA	\$13,288.00	\$13,288	1	EA	\$13,288.00	\$13,288
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	TBD	8552	85L2 Recontamination Hood, Non-Exhaust	1	EA	\$24,000.00	\$24,000	1	EA	\$24,000.00	\$24,000	1	EA	\$24,000.00	\$24,000
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	TBD	8552a	85L2 Recontamination Safety Cabinet/Workstation	1	EA	\$27,675.16	\$27,675	1	EA	\$27,675.16	\$27,675	1	EA	\$27,675.16	\$27,675
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	TBD	8553	85L3 Recontamination Safety Cabinet/Workstation	1	EA	\$27,675.16	\$27,675	1	EA	\$27,675.16	\$27,675	1	EA	\$27,675.16	\$27,675
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	ULINE	N-2219	Cabinet - 2 door 67in. Isotest 30"X40"X27"	1	EA	\$801.75	\$802	1	EA	\$801.75	\$802	1	EA	\$801.75	\$802
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	TBD	CAGE666666	Cage and Rack Washer - 2800	1	EA	\$223,075.76	\$223,076	1	EA	\$223,075.76	\$223,076	1	EA	\$223,075.76	\$223,076
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	Altektron	751A05	Cage Rack, Double-sided Mouse	12	EA	\$80,674.00	\$968,088	12	EA	\$80,674.00	\$968,088	12	EA	\$80,674.00	\$968,088
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	Altektron	PM4 Rack	Cage Rack, Double-sided, Rat	4	EA	\$20,848.99	\$179,388	4	EA	\$20,848.99	\$179,388	4	EA	\$20,848.99	\$179,388
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	Altektron	886LR0-08	Cage Rack, Single-sided, Rabbit	1	EA	\$13,324.16	\$13,324	1	EA	\$13,324.16	\$13,324	1	EA	\$13,324.16	\$13,324
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Furniture	ULINE	170402	Cage, Office, general	2	EA	\$377.12	\$754	2	EA	\$377.12	\$754	2	EA	\$377.12	\$754
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Appliances	Fischer Scientific	777452	Freezer, controlled rate	1	EA	\$39,037.16	\$39,037	1	EA	\$39,037.16	\$39,037	1	EA	\$39,037.16	\$39,037
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Storage	ULINE	N-1052	Lumber, staff	6	EA	\$992.28	\$5,954	6	EA	\$992.28	\$5,954	6	EA	\$992.28	\$5,954
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	MORPC	203037	Necropsy Table (1 per Procedure Room)	4	EA	\$18,234.05	\$72,936	4	EA	\$18,234.05	\$72,936	4	EA	\$18,234.05	\$72,936
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Storage	ULINE	N-1052	Rack, feed and bedding storage	1	EA	\$857.37	\$857	1	EA	\$857.37	\$857	1	EA	\$857.37	\$857
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	ODN		Rebalance Cabinet, lockable	1	EA	\$16,464.43	\$16,464	1	EA	\$16,464.43	\$16,464	1	EA	\$16,464.43	\$16,464
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Lab Equipment	TBD		Surgical Light	4	EA	\$14,889.52	\$59,556	4	EA	\$14,889.52	\$59,556	4	EA	\$14,889.52	\$59,556
Appendix 7	Floor 3-A Research	Room 087 Research Laboratory 14 Vitrums	Furniture	705-0208		Table	2	EA	\$1,314.75	\$2,629	2	EA	\$1,314.75	\$2,629	2	EA	\$1,314.75	\$2,629
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	ULINE	H1375	Chair, Generic	4	EA	\$545.16	\$2,181	4	EA	\$545.16	\$2,181	4	EA	\$545.16	\$2,181
Appendix 7	Floor 3-A,C,D Housing	Room 089 Vitrums	Furniture	ULINE	H1375	Chair, Generic	4	EA	\$545.16	\$2,181	4	EA	\$545.16	\$2,181	4	EA	\$545.16	\$2,181
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	ULINE	H1375	Chair, Generic	24	EA	\$545.16	\$13,084	24	EA	\$545.16	\$13,084	24	EA	\$545.16	\$13,084
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	Sadler Education	709-6208	Table	1	EA	\$1,314.75	\$1,315	1	EA	\$1,314.75	\$1,315	1	EA	\$1,314.75	\$1,315
Appendix 7	Floor 3-A,C,D Housing	Room 089 Vitrums	Furniture	Sadler Education	709-6208	Table	1	EA	\$1,314.75	\$1,315	1	EA	\$1,314.75	\$1,315	1	EA	\$1,314.75	\$1,315
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	Sadler Education	709-6208	Table	1	EA	\$1,314.75	\$1,315	1	EA	\$1,314.75	\$1,315	1	EA	\$1,314.75	\$1,315
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	11	EA	\$895.00	\$9,845	11	EA	\$895.00	\$9,845	11	EA	\$895.00	\$9,845
Appendix 7	Floor 2-A Mixed Research	Room 089 Vitrums	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	286	EA	\$895.00	\$253,236	286	EA	\$895.00	\$253,236	286	EA	\$895.00	\$253,236
Appendix 7	Floor 2-B Computational	Room 089 Vitrums	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	53	EA	\$895.00	\$47,435	53	EA	\$895.00	\$47,435	53	EA	\$895.00	\$47,435
Appendix 7	Floor 3-A Research	Room 089 Vitrums	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	322	EA	\$895.00	\$287,600	322	EA	\$895.00	\$287,600	322	EA	\$895.00	\$287,600
Appendix 7	Floor 3-B,C,D Housing	Room 089 Vitrums	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	4	EA	\$895.00	\$3,580	4	EA	\$895.00	\$3,580	4	EA	\$895.00	\$3,580
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	180	EA	\$895.00	\$161,080	180	EA	\$895.00	\$161,080	180	EA	\$895.00	\$161,080
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	11	EA	\$248.76	\$2,736	11	EA	\$248.76	\$2,736	11	EA	\$248.76	\$2,736
Appendix 7	Floor 2-A Mixed Research	Room 089 Vitrums	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	388	EA	\$248.76	\$96,522	388	EA	\$248.76	\$96,522	388	EA	\$248.76	\$96,522
Appendix 7	Floor 2-B Computational	Room 089 Vitrums	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	53	EA	\$248.76	\$13,144	53	EA	\$248.76	\$13,144	53	EA	\$248.76	\$13,144
Appendix 7	Floor 3-A Research	Room 089 Vitrums	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	382	EA	\$248.76	\$94,833	382	EA	\$248.76	\$94,833	382	EA	\$248.76	\$94,833
Appendix 7	Floor 3-B,C,D Housing	Room 089 Vitrums	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	4	EA	\$248.76	\$995	4	EA	\$248.76	\$995	4	EA	\$248.76	\$995
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	180	EA	\$248.76	\$44,778	180	EA	\$248.76	\$44,778	180	EA	\$248.76	\$44,778
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	11	EA	\$178.75	\$1,966	11	EA	\$178.75	\$1,966	11	EA	\$178.75	\$1,966
Appendix 7	Floor 2-A Mixed Research	Room 089 Vitrums	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	388	EA	\$178.75	\$69,080	388	EA	\$178.75	\$69,080	388	EA	\$178.75	\$69,080
Appendix 7	Floor 2-B Computational	Room 089 Vitrums	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	53	EA	\$178.75	\$9,471	53	EA	\$178.75	\$9,471	53	EA	\$178.75	\$9,471
Appendix 7	Floor 3-A Research	Room 089 Vitrums	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	382	EA	\$178.75	\$68,091	382	EA	\$178.75	\$68,091	382	EA	\$178.75	\$68,091
Appendix 7	Floor 3-B,C,D Housing	Room 089 Vitrums	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	4	EA	\$178.75	\$715	4	EA	\$178.75	\$715	4	EA	\$178.75	\$715
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	180	EA	\$178.75	\$32,163	180	EA	\$178.75	\$32,163	180	EA	\$178.75	\$32,163
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	11	EA	\$269.56	\$2,965	11	EA	\$269.56	\$2,965	11	EA	\$269.56	\$2,965
Appendix 7	Floor 2-A Mixed Research	Room 089 Vitrums	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	388	EA	\$269.56	\$104,797	388	EA	\$269.56	\$104,797	388	EA	\$269.56	\$104,797
Appendix 7	Floor 2-B Computational	Room 089 Vitrums	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	53	EA	\$269.56	\$14,343	53	EA	\$269.56	\$14,343	53	EA	\$269.56	\$14,343
Appendix 7	Floor 3-A Research	Room 089 Vitrums	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	382	EA	\$269.56	\$102,964	382	EA	\$269.56	\$102,964	382	EA	\$269.56	\$102,964
Appendix 7	Floor 3-B,C,D Housing	Room 089 Vitrums	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	4	EA	\$269.56	\$1,063	4	EA	\$269.56	\$1,063	4	EA	\$269.56	\$1,063
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	180	EA	\$269.56	\$48,521	180	EA	\$269.56	\$48,521	180	EA	\$269.56	\$48,521
Appendix 7	Floor 1-A,B Housing	Room 089 Vitrums	Furniture	Shelvacore	7.508	Modulation with Pedestal	11	EA	\$3,287.73	\$36,279	11	EA	\$3,287.73	\$36,279	11	EA	\$3,287.73	\$36,279
Appendix 7	Floor 2-A Mixed Research	Room 089 Vitrums	Furniture	Shelvacore	7.508	Modulation with Pedestal	388	EA	\$3,287.73	\$1,272,622	388	EA	\$3,287.73	\$1,272,622	388	EA	\$3,287.73	\$1,272,622
Appendix 7	Floor 2-B Computational	Room 089 Vitrums	Furniture	Shelvacore	7.508	Modulation with Pedestal	53	EA	\$3,287.73	\$174,779	53	EA	\$3,287.73	\$174,779	53	EA	\$3,287.73	\$174,779
Appendix 7	Floor 3-A Research	Room 089 Vitrums	Furniture	Shelvacore	7.508	Modulation with Pedestal	382	EA	\$3,287.73	\$1,253,777	382	EA	\$3,287.73	\$1,253,777	382	EA	\$3,287.73	\$1,253,777
Appendix 7	Floor 3-B,C,D Housing	Room 089 Vitrums	Furniture	Shelvacore	7.508	Modulation with Pedestal	4	EA	\$3,287.73	\$13,151	4	EA	\$3,287.73	\$13,151	4	EA	\$3,287.73	\$13,151
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 089 Vitrums	Furniture	Shelvacore	7.508	Modulation with Pedestal	180	EA	\$3,287.73	\$591,591	180	EA	\$3,287.73	\$591,591	180	EA	\$3,287.73	\$591,591
Appendix 7	Floor 3-A Wellness/Aquatics/Chlorine	Room 089 Vitrums - AQUATICS	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	8	EA	\$895.00	\$7,160	8	EA	\$895.00	\$7,160	8	EA	\$895.00	\$7,160
Appendix 7	Floor 3-A Wellness/Aquatics/Chlorine	Room 089 Vitrums - AQUATICS	Furniture	Shelvacore	09L80F	Light, Task, LED in Fluorescent	8	EA	\$248.76	\$1,990	8	EA	\$248.76	\$1,990	8	EA	\$248.76	\$1,990
Appendix 7	Floor 3-A Wellness/Aquatics/Chlorine	Room 089 Vitrums - AQUATICS	Furniture	Shelvacore	13090K	Light, Undermount, LED in Fluorescent	8	EA	\$178.75	\$1,430	8	EA	\$178.75	\$1,430	8	EA	\$178.75	\$1,430
Appendix 7	Floor 3-A Wellness/Aquatics/Chlorine	Room 089 Vitrums - AQUATICS	Furniture	Shelvacore	18B48Z7F4K	Overhead bin, Mid (can be swapped for shelf)	8	EA	\$269.56	\$2,156	8	EA	\$269.56	\$2,156	8	EA	\$269.56	\$2,156
Appendix 7	Floor 3-A Wellness/Aquatics/Chlorine	Room 089 Vitrums - AQUATICS	Furniture	Shelvacore	7.508	Modulation with Pedestal	8	EA	\$3,287.73	\$26,298	8	EA	\$3,287.73	\$26,298	8	EA	\$3,287.73	\$26,298
Appendix 7	Floor 2-A Mixed Research	Room 070 Vitrums - Reception	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	4	EA	\$895.00	\$3,580	4	EA	\$895.00	\$3,580	4	EA	\$895.00	\$3,580
Appendix 7	Floor 2-B Computational	Room 070 Vitrums - Reception	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	3	EA	\$895.00	\$1,965	3	EA	\$895.00	\$1,965	3	EA	\$895.00	\$1,965
Appendix 7	Floor 3-A Research	Room 070 Vitrums - Reception	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	3	EA	\$895.00	\$1,965	3	EA	\$895.00	\$1,965	3	EA	\$895.00	\$1,965
Appendix 7	Floor 3-A ACAD Lead-Enrollment	Room 070 Vitrums - Reception	Furniture	Shelvacore	403033001	Chair, Office, Legarm Midnight	3	EA	\$895.00	\$1,965	3	EA	\$895.00	\$1,965	3	EA	\$895.00	\$1,965
Appendix 7	Floor 2-A Mixed Research	Room 070 Vitrums - Reception	Furniture															

APPENDIX 19 - FF&E and Autoclave Equipment Costing

							Items & Quantities based on Original FF&E Cost				Items & Quantities based on D&C FF&E Cost						
Source	Building	FF&E Package	Category	Manufacturer	Model Number	Item Description	Orig. Qty	UOM	Unit Price	Cost	Orig. Qty	Delta	reduced Qty	Unit	Unit Price	Cost	
Appendix F	Floor 3-B,C,D Housing	Room 084 Laundry Housing	Appliance	Maytag	MGL22PDA99W	Dryer	36	EA	\$3,827.61	\$137,794	36	32.4	(4.0%)	32	EA	\$3,827.61	\$122,484
Appendix F	Floor 1-A,B Housing	Room 084 Laundry Housing	Appliance	Maytag	GASDRYER99T	Installation Kit	72	EA	\$191.92	\$7,338	72	64.8	(9.0%)	64	EA	\$191.92	\$6,323
Appendix F	Floor 3-B,C,D Housing	Room 084 Laundry Housing	Appliance	Maytag	GASDRYER99T	Installation Kit	72	EA	\$191.92	\$7,338	72	64.8	(9.0%)	64	EA	\$191.92	\$6,323
Appendix F	Floor 1-A,B Housing	Room 084 Laundry Housing	Appliance	Squared Green	Waterloo	Waterloo, Front Load	36	EA	\$3,452.55	\$124,292	36	32.4	(4.0%)	32	EA	\$3,452.55	\$115,440
Appendix F	Floor 3-B,C,D Housing	Room 084 Laundry Housing	Appliance	Squared Green	Waterloo	Waterloo, Front Load	36	EA	\$3,452.55	\$124,292	36	32.4	(4.0%)	32	EA	\$3,452.55	\$115,440
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 085 Triage	Furniture	Steelcase	467110	Chair, Office	3	EA	\$470.22	\$1,411	3	2.7	0.0%	3	EA	\$470.22	\$1,411
Appendix F	Floor 3-4 Wellness-Aquatics	Room 085 Triage	Medical Equipment	Epigen	ED11-0102	Computer charting station and vital station height	3	EA	\$2,424.36	\$7,274	3	2.7	0.0%	3	EA	\$2,424.36	\$7,274
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 085 Triage	Furniture	Steelcase	DSLEDP	Light Task, LED w/ Fluorescent	3	EA	\$246.76	\$746	3	2.7	0.0%	3	EA	\$246.76	\$746
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 085 Triage	Furniture	Steelcase	LSB09K	Light Undermount, LED w/ Fluorescent	3	EA	\$176.75	\$536	3	2.7	0.0%	3	EA	\$176.75	\$536
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 085 Triage	Furniture	Steelcase	HB848276M	Overhead bin, Mid (can be swapped for shelf)	3	EA	\$260.56	\$872	3	2.7	0.0%	3	EA	\$260.56	\$872
Appendix F	Floor 3-4 Wellness-Aquatics	Room 085 Triage	Medical Equipment	Molmark	Riter 270	Stret, Exam, height adjustable, wheeled	3	EA	\$243.49	\$730	3	2.7	0.0%	3	EA	\$243.49	\$730
Appendix F	Floor 3-4 Wellness-Aquatics	Room 085 Triage	Medical Equipment	Molmark	Riter 294	Table, Triage	3	EA	\$3,997.37	\$11,992	3	2.7	0.0%	3	EA	\$3,997.37	\$11,992
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 085 Triage	Furniture	Steelcase	7-006	Modulation with Pedestal	3	EA	\$3,297.73	\$9,893	3	2.7	0.0%	3	EA	\$3,297.73	\$9,893
Appendix F	Floor 3-F ECEC	Room 090 Observation Room	Furniture	Steelcase	467110	Chair, Office	2	EA	\$470.22	\$940	2	1.8	0.0%	2	EA	\$470.22	\$940
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 092 TactiControl	Furniture	Steelcase	467110	Chair, wheeled, height adjustable	3	EA	\$872.44	\$2,617	3	2.7	0.0%	3	EA	\$872.44	\$2,617
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 092 TactiControl - AQUATICS	Furniture	Steelcase	467110	Chair, wheeled, height adjustable	3	EA	\$872.44	\$2,617	3	2.7	0.0%	3	EA	\$872.44	\$2,617
Appendix F	Floor 2-B Computational	Room 094 Classroom/Laboratory Computational	Furniture	Steelcase	467110	Chair, Office	6	EA	\$470.22	\$3,762	6	7.2	(1.0%)	7	EA	\$470.22	\$3,392
Appendix F	Floor 2-B Computational	Room 094 Classroom/Laboratory Computational	Furniture	Steelcase	467110	Chair, wheeled, height adjustable	1	EA	\$872.44	\$872	1	0.9	0.0%	1	EA	\$872.44	\$872
Appendix F	Floor 2-B Computational	Room 094 Classroom/Laboratory Computational	Furniture	Steelcase	DAPS2246S	Table, classroom	1	EA	\$1,463.32	\$1,463	1	0.9	0.0%	1	EA	\$1,463.32	\$1,463
Appendix F	Floor 2-B Computational	Room 094 Classroom/Laboratory Computational	Furniture	Steelcase	DS2564SL	Table, Fixed 6'	2	EA	\$2,569.63	\$5,160	2	1.8	0.0%	2	EA	\$2,569.63	\$5,160
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Procedure/Coating	Medical Equipment	Benco	MEHC-1224	Monitor, Digital X-rays	1	EA	\$3,362.97	\$3,363	1	0.9	0.0%	1	EA	\$3,362.97	\$3,363
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Procedure/Coating	Medical Equipment	Alfred Heacock Gomes	3010	Cat with pump for suction	1	EA	\$4,691.44	\$4,691	1	0.9	0.0%	1	EA	\$4,691.44	\$4,691
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Procedure/Coating	Medical Equipment	Molmark	Riter 270	Stret, Exam, height adjustable, wheeled	1	EA	\$243.49	\$243	1	0.9	0.0%	1	EA	\$243.49	\$243
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Procedure/Coating	Medical Equipment	Molmark	Riter 230	Table, Exam	1	EA	\$24,811.22	\$24,811	1	0.9	0.0%	1	EA	\$24,811.22	\$24,811
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Procedure/Coating	Medical Equipment	DeBorator	225	Vacuum & Saw	1	EA	\$5,992.16	\$5,992	1	0.9	0.0%	1	EA	\$5,992.16	\$5,992
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Procedure/Coating	Medical Equipment	Watch Allen	468B-61	Wall Station	1	EA	\$3,739.05	\$3,739	1	0.9	0.0%	1	EA	\$3,739.05	\$3,739
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Medical Equipment	Thermo Scientific	771469	Cabinet, LMP metal storage	1	EA	\$24,804.61	\$24,805	1	0.9	0.0%	1	EA	\$24,804.61	\$24,805
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Medical Equipment	Epigensoft	LS-62075-30	Centrifuge	1	EA	\$6,699.29	\$6,699	1	0.9	0.0%	1	EA	\$6,699.29	\$6,699
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Medical Equipment	Abnova	Protein Novus AB887-07-005-01	CLIA Walled Chemistry Analyzer	1	EA	\$13,389.43	\$13,389	1	0.9	0.0%	1	EA	\$13,389.43	\$13,389
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Medical Equipment	Mindray	BC-2000	CLIA Walled Hematology Analyzer	1	EA	\$50,481.36	\$10,482	1	0.9	0.0%	1	EA	\$10,481.36	\$10,482
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Lab Equipment	Not-Like	MSBP-221000003	Freezer, Blood Bank/Laboratory	1	EA	\$16,802.87	\$16,804	1	0.9	0.0%	1	EA	\$16,802.87	\$16,804
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Medical Equipment	Manitowoc	DY-230993	Ice Machine w/ Ice Bin (F-1300)	1	EA	\$26,117.56	\$26,118	1	0.9	0.0%	1	EA	\$26,117.56	\$26,118
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Lab Equipment	AmScope	M80C-ABS-P102-98M	Microscopes	2	EA	\$232.68	\$465	2	1.8	0.0%	2	EA	\$232.68	\$465
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Lab Equipment	Not-Like	MSBP241999G2S	Refrigerator, Blood Bank/Laboratory Grade	1	EA	\$14,738.38	\$14,738	1	0.9	0.0%	1	EA	\$14,738.38	\$14,738
Appendix F	Floor 3-4 Wellness-Aquatics	Room 095 Laboratory Medical	Medical Equipment	Clinical	5820-1780	Urine Analyzer	1	EA	\$1,574.69	\$1,575	1	0.9	0.0%	1	EA	\$1,574.69	\$1,575
Appendix F	Floor 3-4 Research	Room 098 Storage Biohazardous waste	Appliance	Excellence	UCS-47	Freezer, Chest, 6'	1	EA	\$6,270.46	\$6,270	1	0.9	0.0%	1	EA	\$6,270.46	\$6,270
Appendix F	Floor 2-A Mixed Research	Room 099 Office Huddle Room	Furniture	Steelcase	467110	Chair, Office	16	EA	\$470.22	\$7,524	16	14.4	(2.0%)	14	EA	\$470.22	\$6,583
Appendix F	Floor 2-B Computational	Room 099 Office Huddle Room	Furniture	Steelcase	467110	Chair, Office	12	EA	\$470.22	\$5,643	12	10.8	(2.0%)	10	EA	\$470.22	\$4,702
Appendix F	Floor 3-4 Research	Room 099 Office Huddle Room	Furniture	Steelcase	467110	Chair, Office	8	EA	\$470.22	\$3,762	8	7.2	(1.0%)	7	EA	\$470.22	\$3,392
Appendix F	Floor 3-4 ACAD Lead Enrollment	Room 099 Office Huddle Room	Furniture	Steelcase	467110	Chair, Office	96	EA	\$470.22	\$45,141	96	86.4	(10.0%)	86	EA	\$470.22	\$40,436
Appendix F	Floor 3-4 Wellness/Aquatics/Wellness	Room 099 Office Huddle Room	Furniture	Steelcase	467110	Chair, Office	4	EA	\$470.22	\$1,881	4	3.6	0.0%	4	EA	\$470.22	\$1,881
Appendix F	Floor 2-A Mixed Research	Room 099 Office Huddle Room	Furniture	Sauder Education	709-6288	Table	4	EA	\$1,314.75	\$5,259	4	3.6	0.0%	4	EA	\$1,314.75	\$5,259
Appendix F	Floor 2-B Computational	Room 099 Office Huddle Room	Furniture	Sauder Education	709-6288	Table	3	EA	\$1,314.75	\$3,944	3	2.7	0.0%	3	EA	\$1,314.75	\$3,944
Appendix F	Floor 3-4 Research	Room 099 Office Huddle Room	Furniture	Sauder Education	709-6288	Table	2	EA	\$1,314.75	\$2,630	2	1.8	0.0%	2	EA	\$1,314.75	\$2,630
Appendix F	Floor 3-4 ACAD Lead Enrollment	Room 099 Office Huddle Room	Furniture	Sauder Education	709-6288	Table	24	EA	\$1,314.75	\$31,554	24	21.6	(10.0%)	21	EA	\$1,314.75	\$27,810
Appendix F	Floor 3-4 Wellness/Aquatics	Room 099 Office Huddle Room	Furniture	Sauder Education	709-6288	Table	1	EA	\$1,314.75	\$1,315	1	0.9	0.0%	1	EA	\$1,314.75	\$1,315
Appendix F	Floor 2-A Mixed Research	Room 099 Office Huddle Room	Furniture	OFM Endura	6004	Table, Four Top	4	EA	\$1,922.67	\$7,691	4	3.6	0.0%	4	EA	\$1,922.67	\$7,691
Appendix F	Floor 2-B Computational	Room 099 Office Huddle Room	Furniture	OFM Endura	6004	Table, Four Top	3	EA	\$1,922.67	\$5,766	3	2.7	0.0%	3	EA	\$1,922.67	\$5,766
Appendix F	Floor 3-4 Research	Room 099 Office Huddle Room	Furniture	OFM Endura	6004	Table, Four Top	2	EA	\$1,922.67	\$3,845	2	1.8	0.0%	2	EA	\$1,922.67	\$3,845
Appendix F	Floor 3-4 ACAD Lead Enrollment	Room 099 Office Huddle Room	Furniture	OFM Endura	6004	Table, Four Top	24	EA	\$1,922.67	\$46,144	24	21.6	(10.0%)	21	EA	\$1,922.67	\$40,376
Appendix F	Floor 3-4 Wellness-Aquatics	Room 099 Office Huddle Room	Furniture	OFM Endura	6004	Table, Four Top	1	EA	\$1,922.67	\$1,923	1	0.9	0.0%	1	EA	\$1,922.67	\$1,923
Appendix F	Floor 1-2 Central Dining	Room 102 Central Dining	Furniture	Steelcase	Series 475	Chair, Payer	700	EA	\$260.02	\$203,013	700	630	(9.0%)	630	EA	\$260.02	\$162,712
Appendix F	Floor 1-2 Central Dining	Room 102 Central Dining	Furniture	Dining Table	OringTable	Dining Table	100	EA	\$4,222.31	\$654,647	100	100	(75.0%)	100	EA	\$4,222.31	\$271,362
Appendix F	Floor 1-2 Central Dining	Room 102 Central Dining	Furniture	Landscape Forms 30 Collection	ExTable	Exterior Table	20	EA	\$14,776.83	\$295,537	20	18	(2.0%)	18	EA	\$14,776.83	\$266,083
Appendix F	Floor 3-4 Research	Room 102 Research Laboratory 16- BSJ3 Suite	Lab Equipment	TBO	Auto3855	Autoclave 36" Single Sided	1	EA	\$147,576.01	\$147,576	1	0.9	0.0%	1	EA	\$147,576.01	\$147,576
Appendix F	Floor 3-4 Research	Room 102 Research Laboratory 16- BSJ3 Suite	Lab Equipment	TBO	Auto39T	Autoclave, 36" Pass-Through	2	EA	\$106,136.22	\$202,276	2	1.8	0.0%	2	EA	\$106,136.22	\$202,276
Appendix F	Floor 3-4 Research	Room 102 Research Laboratory 16- BSJ3 Suite	Lab Equipment	TBO	BSJ2	BSJ2 decontamin Hood, Non-Cyclonic	9	EA	\$28,855.69	\$241,701	9	8.1	(1.0%)	8	EA	\$28,855.69	\$214,945
Appendix F	Floor 3-4 Research	Room 102 Research Laboratory 16- BSJ3 Suite	Storage	Li-Line	H-852	Locker, staff	10	EA	\$992.28	\$9,923	10	9	(1.0%)	9	EA	\$992.28	\$8,931
Appendix F	Floor 3-4 ACAD Lead Enrollment	Room 103 Conference Room 03- 72 seats	Furniture	Steelcase	46711010	Chair, Office, Back with Casters	216	EA	\$470.22	\$101,068	216	194.4	(25.0%)	194	EA	\$470.22	\$91,323
Appendix F	Floor 3-4 ACAD Lead Enrollment	Room 103 Conference Room 03- 72 seats	Furniture	Steelcase	LECTERN	Lectern/Podium, movable	3	EA	\$504.76	\$1,514	3	2.7	0.0%	3	EA	\$504.76	\$1,514
Appendix F	Floor 3-4 ACAD Lead Enrollment	Room 103 Conference Room 03- 72 seats	Furniture	Steelcase	NPF722485.C	Table, Flip top, 72", Instant Hot Padde Top, Mid Edge, Side Bow and Columns	108	EA	\$1,176.46	\$127,051	108	97.2	(1.0%)	97	EA	\$1,176.46	\$114,111
							Original FF&E Cost			Total:	D&C FF&E Cost						
										\$34,352,122							
											D&C FF&E Cost						
											Total:						
											\$31,197,894						