BID DOCUMENTS COVER SHEET

CONTRACT DOCUMENTS

FOR

L-636 Physical Education & Student Union Complex

DSA File #7-C1
DSA Application # # 01-115488

AT

LOS MEDANOS COLLEGE
2700 East Leland Road, Pittsburg, California 94565

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

ADDENDUM #4

Drawings & Specification

Architect:
LPA
60 South market Street, Suite 150
San Jose, CA 95113

July 6, 2017
NOTICE TO ALL PRE-QUALIFIED CONTRACTORS ONLY

You are hereby notified of the following changes, clarifications and/or modifications to the original Contract Documents, Project Manual, Drawings, Specifications and/or previous Addenda. This Addendum shall supersede the original Contract Documents and previous Addenda wherein it contradicts the same, and shall take precedence over anything to the contrary therein. All other conditions remain unchanged.

This Addendum forms a part of the Contract Documents and modifies the original Contract Documents dated May 8, 2017. Acknowledge receipt of this Addendum in space provided on the Bid Proposal Form. Failure to acknowledge may subject Bidder to disqualification.

A. ADDITIONS, DELETIONS, REVISIONS, REPLACE SPECIFICATIONS, DIV 0 & 1

1. REVISION: Table of Content
   Include added sections.

2. REPLACE: Section 00600 – Construction Agreement
   Delete Article 9. INSURANCE in its entirety and replace with 9. INSURANCE: Refer to Section 00700 Article 11 INSURANCE AND BONDS for Contract Insurance Requirements.

3. REPLACE: Section 00700 – General Conditions
   Delete Article 11. INSURANCE AND BONDS in its entirety and replace with the attached Article 11. INSURANCE AND BONDS (ADD. # 4). Subcontractor levels were revised.

B. ADDITIONS, DELETIONS, REVISIONS, REPLACE TECHNICAL SPECIFICATIONS:

1. ADD: Section 01316 BUILDING INFORMATION MODELING (BIM)

2. ADD: Section 262729 – Electric Vehicle Charging Station.

C. REVISION TO DRAWINGS SHEETS:

   All drawing modifications are indicated on the drawings with a cloud graphic and a Delta 2.

   1. C0.03 – PHASING PLAN
      Additional temporary construction fencing added adjacent to the portables.
ADDENDUM #4

2. AB3.11 – EXTERIOR ELEVATIONS – SU BUILDING (BLDG B)
   Clarified section title description.

3. AB3.12 – EXTERIOR ELEVATIONS – SU BUILDING (BLDG B)
   Clarified section title description.

4. AB3.51 – WALL SECTIONS – SU BUILDING (BLDG B)
   Clarified section title description.

5. AB3.52 – WALL SECTIONS – SU BUILDING (BLDG B)
   Clarified section title description.

6. AB3.53 – WALL SECTIONS – SU BUILDING (BLDG B)
   Clarified section title description.

7. AB3.54 – WALL SECTIONS – SU BUILDING (BLDG B)
   Clarified section title description.

8. AB3.55 – WALL SECTIONS – SU BUILDING (BLDG B)
   Clarified section title description.

9. A7.05
   McNicholls perforated stair product number updated for a 3/16” thick metal.

10. A8.01 – SITE DETAILS
    Details added of trash enclosure roof.

11. A8.12 – EXTERIOR DETAILS
    Details modified as indicated

12. A8.16 – EXTERIOR DETAILS (BLDG B)
    Details modified as indicated

13. A8.17 – EXTERIOR DETAILS (BLDG B)
    Details modified as indicated

14. MA2.10
    Duct run clarified.

15. E0.21 LIGHTING FIXTURE SCHEDULE
    Light fixture LW1 provided.

16. T0.01 TECHNOLOGY GENERAL INFORMATION
    General Note #10 was missing – provided in this document that lists the OFCI (Owner Furnished, Contractor Installed) equipment.
D. PRE-BID RFI's

1. Question: Reference drawing A705, A706 Detail 16/A7.05 calls McNichols part #1818312231 perforated steel riser. McNICHOLS states the material as 22 Gauge Stainless Steel. Detail 9/A706 calls out 3/16" perforated steel tread. Detail 10/A7.06 states the perforated steel tread risers are 10 gauge. Is 22-gauge carbon steel perforated steel treads acceptable?
   Response: Provide 3/16" perforated steel tread, McNichols #1631513141 3/16" holes on 5/16" Centers, staggered pattern with solid edges per detail 16/A7.05

2. Question: Regarding the above referenced project, are we allowed to use MC cable for power branch circuits?
   Response: The use of MC cable is limited and governed by the specs

3. Question: Per detail 4 on sheet S0.11, the typical slab on grade is directly on the compacted building pad, without a section of sand and/or base rock. Electrical specification 260534.L.1.b states that all conduit installed under a slab on grade must be 12" below the bottom of the slab. Based on the structural details and electrical specification noted above, this will preclude the installation of underslab branch conduits throughout the buildings, adding substantial cost to the electrical rough in. Please advise if either of the following modifications can be made to allow for underslab conduit installation:
   1. Add a section of base rock beneath the slab. Underslab conduit would be installed on the compacted pad below and within the bottom of the section of base rock.
   2. Modify the electrical specification noted above to remove the 12" below the bottom of slab requirement. We would propose to "scratch" down the pad so the top of conduit is even with the top of the compacted building pad.
   Response: Provide conduit below slab as specified. Trench as necessary, backfill and compact to match density of adjacent prepared soil. See structural plans for requirements

4. Question: Are there any written specs for the modular trellis (greenscreen fence) and the louvered panels and gates?
   Is there a specific gray for the louvers?
   Response: Contractor to follow manufacturer's specifications for Green screen and Louvers per details. Gray color to match Architecture per L0.01 Required Shop drawing submittals, TYP

5. Question: Also keynote 16,17, and 18 call for galvanized chain link fence but the written specs call for black vinyl coated. Please clarify.
   Chain-link says to be 2” mesh 6 ga. Which is mostly used at prisons. 9 ga core (8ga finish with vinyl) would be more typical for this application. Could this be used?
   Response: All Chain Link to be Hot Dipped Galvanized 9 Ga. Chain link STD 2” mesh per 32 31 13

6. Question: Per "Spec 09 5100 Part 2.05 B. 1. a. 2) a)” lists acoustic tile “Type ACT-2” yet none was found on the RCP Plans. Please confirm this type will not be used or their location if it is used.
   Response: Type ACT-2 is not used, and are not on the reflected ceiling plans.
7. Question: Reviewing the specifications for the Servery Partition and see that section 084334 covers the partition there. However, one of the RFI questions and responses in Addendum 3 reference paragraph 2.06C for this location regarding the vinyl graphic film in Section 102241. Can you confirm which section governs for this partition at the Servery?
Response: Spec section 084334 is for the folding glass counter doors (see AB4.13 keynote 08.13). Spec section 102241 is for the Servery large glass floor-to-ceiling folding doors.

8. Question: There are currently no specifications for the A/V system nor the Paging/Clock system, but there are device layouts shown on the technology drawings. Please clarify if we are to include these systems in our scope, or if they are to be owner furnished owned installed systems.
Response: AV system is OFOI (Owner Furnished, Owner Installed). AV infrastructure and cabling shall be provided by Contractor. Paging/Clock cabling and devices shall be provided by Contractor.

9. Question: There are cameras shown on the drawings, but I do not see a spec for the type/quantity of cable required. In section 28 23 00 – 3.01 A. 7 - it says to coordinate Network Data Drop with Telecom Contractor for each IP Camera. Do you want me to include 1 CAT6A cable per camera location?
Response: Include (2) CAT6A per camera location

10. Question: Should the cameras themselves be included in our price or provided by others?
Response: Include security cameras as part of scope.

11. Question: There are AV components (AV speakers, AV rack TA2.11 – keynote E1451, AV outlets..) on the plan but no specs that I can find, who is doing the AV work?
Response: AV system is OFOI except for projector screens that are provided by Contractor.

12. Question: Sheet E1.00 calls for electrical vehicle charging stations DBB-8 and DBB-7, please provide specifics for these charging stations, manufacturer information and who will provide.
Response: The specifics are listed in keynote E-1138, use Chargepoint Level 2 charger. For further clarification, specifications have been included with Addendum #4 to use the CT4000 series, single and dual as noted.

13. Question: The site symbols sheet on L0.01 directs us to use the control and expansion joint details called out on 03/L5.01. Looking at these details we are provided with three different joint types:
   1) Control joints are show with expansion material in them that is 1” shorter than the depth of the paving with a tool joint over the top (we assume to be achieved using a snap-cap like material). This does not seem correct as the joint using expansion material would make it an expansion joint
   2) Another control joint is shown with expansion material running the full depth of the pavement – a standard detail we see on many projects
   3) And lastly a sawcut joint is show without direction of where it is to apply. Looking at the existing site, it appears that all paving uses tool joints and that no saw cutting exists. Which expansion joint detail is to be used were show in the landscape plans? The full depth or the one showing the material being 1” shorter than the pavement it is installed at? If the 1” short joint is used, will the use of snap caps be acceptable to achieve the 1” joint above expansion materials?
What detail is to be used for control joints? Are they to be tooled in or is the owner requesting sawcut joints for all control joints? The use of sawcut will add considerable cost to the pavement items and does not look as though it will match existing conditions.

Response: 1) The control joints are sawcut joints AND Expansion joints, called out and located on L2.0 series. The tooled 1/8" x 1" open expansion joint is meant to be formed, snap caps will be impossible to remove, another forming material can be used.  
2) Typical expansion joints are used at tie-ins and vertical surfaces, see details, 5, 6, 7  
3) See L2.0 series in conjunction with L0.01. the EJ’s are a dashed line about 20’ O.C. and the Sawcut joints are around 5’ O.C. with a solid line. 
The majority of the project will feature sawcut joints. The expansion joints will primarily be the 1” ledge with 1/8” opening per layout plans. 
Sawcut the sawcut joints and tool the expansion joints per 03/L5.01 that was issued as part of Addendum #3

14. Question: Response to Question #7 of Addendum #2 is incomplete. The Duct Silencers for the AC-B1 Unit is depicted on Drawing MB2.10 as SDS-B1, SDS-B2, and RDS-B1. But still cannot locate Tags RDS-A1, RDS-A2, SDS-A1, and SDS-A2 in the Plans. Please locate and identify the units they serve.

Response: Duct silencers RDS-A1 and SDS-A1 serve unit AC-A1 and are located on sheet MA2.10 between gridlines A5/A6 and AE/AF. Silencers RDS-A2 and SDS-A2 serve unit AC-A2 and are located on sheet MA2.10 at gridline A3 between AE/AF.

15. Question: Response to Question #35 (or RFI M09) of Addendum #3 is incomplete. There are also Lined Round Ductwork serving EF-A8 and EF-A9 that should be converted to Lined Rectangular Ductwork within the same gridlines by AH & AM and A15 & A10 noted previously. Please provide.

Response: Removed round duct lining. Duct drops for EF-8 & EF-9 changed to lined rectangular duct. See changes on Addendum #4 sheet MA2.10.

16. Question: On the lighting schedule for this project the line for “LW1” is blank. There are two of this fixture on page EA2.21 (middle of the page slightly to the right). What type of light is required in this space?

Response: LW1 – 8’ wall mounted linear “Beam 4 LED” series, 8’ in length direct/indirect wall sconce, 640 lumen a foot upright, 400 lumens a foot downlight, spotless lens, universal voltage, 0-10v dimming driver to 10%, 1 circuit, dust cover, finish TBD - #BBWDLED-B3-MF-640-400-80-35-SO-8-??-UNV-D-1-D Equals Focal point Seem 4 or Pinnacle. See updated sheet E0.21 with Addendum #4.

If you have any questions regarding this Addendum, please contact:

Jovan Esprit  
Contra Costa Community College District  
500 Court St., Martinez, CA 94553  
Email: jesprit@4cd.edu; Facsimile: 925-229-6959

All other terms and conditions of Bid are to remain the same.

Caroline Kwak (Project Manager)  
LPA, Inc.  
60 South Market Street, Suite 150 San Jose, CA 95113

END OF ADDENDUM #4
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SECTION 099623  GRAFFITI-RESISTANT COATINGS

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SECTION 101123  TACKABLE WALL PANELS  (ADDENDUM # 3)
SECTION 101403  EXTERIOR SIGNAGE  (ADDENDUM # 3)
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SECTION 102113  TOILER COMPARTMENTS
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SECTION 102226  OPERABLE PARTITIONS  (ADDENDUM # 2)
SECTION 102241  FOLDING GLASS PARTITIONS (ADDENDUM # 2)
SECTION 102602  WALL AND CORNER PROTECTION
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SECTION 104300  EMERGENCY AID SPECIALTIES
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SECTION 105113  METAL LOCKERS  (ADDENDUM # 3)
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DIVISION 11 - EQUIPMENT
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SECTION 113100  RESIDENTIAL APPLIANCES
SECTION 114000  FOODSERVICE EQUIPMENT (ADDENDUM 1)
SECTION 115213  PROJECTION SCREENS
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DIVISION 12 - FURNISHINGS
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SECTION 122413  ROLLER WINDOW SHADES (ADDENDUM 1)
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**DIVISION 22 – PLUMBING**
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SECTION 220533 HEAT TRACING FOR PLUMBING PIPING
SECTION 220548 VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT
SECTION 220553 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT (ADDENDUM # 2)
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**DIVISION 23 – HEATING, VENTILATION, AND AIR-CONDITIONING**
SECTION 230513 COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT
SECTION 230516 EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING (ADDENDUM # 3)
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SECTION 233600   AIR TERMINAL UNITS (ADDENDUM # 3)
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SECTION 260513   MEDIUM-VOLTAGE CABLES
SECTION 260519   LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
SECTION 260526   GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
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SECTION 260534   CONDUIT     (ADDENDUM # 2)
SECTION 260536   CABLE TRAYS FOR ELECTRICAL SYSTEMS     DELETED (ADDENDUM # 3)
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SECTION 260553   IDENTIFICATION FOR ELECTRICAL SYSTEMS     (ADDENDUM # 2)
SECTION 290914   ELECTRICAL SENSING AND MEASUREMENTS     (ADDENDUM # 3)
SECTION 260919   ENCLOSED CONTACTORS
SECTION 260923   LIGHTING CONTROL DEVICES
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SECTION 262413   SWITCHBOARDS     (ADDENDUM # 2)
SECTION 262416   PANELBOARDS      (ADDENDUM # 2)
SECTION 262717   EQUIPMENT WIRING
SECTION 262726   WIRING DEVICES
SECTION 262729   ELECTRIC VEHICLE CHARGING STATION     (ADDENDUM # 4)
SECTION 262813   FUSES     (ADDENDUM # 2)
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DIVISION 27 – COMMUNICATIONS
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SECTION 270528   CABLE TRAY
SECTION 271000   STRUCTURED CABLING SYSTEM
SECTION 271116   CABINETS, ENCLOSURES AND RACKS
SECTION 271123   LADDER RACKING
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DIVISION 28 – ELECTRONIC SAFETY AND SECURITY
SECTION 281300   ACCESS CONTROL
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- Section 321123  Aggregate Base Courses
- Section 321216  Asphalt Paving
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- Section 321373  Pavement Joint Sealers
- Section 321713  Parking Bumpers
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- Section 323113  Chain Link Fences and Gates (Addendum #3)
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- Section 323300  Site Furnishings
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- Section 323313  Bicycle Racks
- Section 328423  Irrigation System
- Section 329119  Landscape Grading
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- Process Equipment Subgroup
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### Drawings Prepared by LPA Inc.

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Contra Costa Community College District
Los Medanos College
L-636 Physical Education & Student Union Complex
SECTION 00600
CONSTRUCTION AGREEMENT

CONTRACT NO. _____________________
(Construction Agreement)

This Agreement shall not be enforceable until ratified and approved by the Contra Costa Community College District’s Governing Board. The estimated board meeting date is July 27, 2017.

§1.1 Parties: (Public Agency) CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court St, Martinez, CA 94553

(Contractor) _________________________
Address: _________________________

§1.2 Effective Date: _______________________

§1.3 The Work: L-636 Physical Education and Student Union

§1.4 Substantial Completion Time: Phase II and III: 790 Calendar Days from the Notice to Proceed.

§1.4.1 Phase Completion:
Phase I – Completed under a separate contract
Phase II Substantial Completion Phase II – 730 Calendar Days from Notice to Proceed
Phase III Substantial Completion Phase III – 60 Calendar Days to start 30 calendar days following the completion of Phase II work.
Final Completion 30 Calendar Days from Phase III Substantial Completion

§1.5 The Bidder acknowledges that this project consists of phases and bidder agrees that each phase of the project must be substantially completed and accepted by the Owner before a written “Notice to Proceed” is issued for the next phase of the Project. Bidder also agrees to pay, as liquidated damages the amounts specified below for each consecutive calendar day after the expiration of the consecutive calendar days allowed for each phase.

§1.5.1 Liquidated Damages, Substantial Completion by Phase:
Phase II - $5,000 / per calendar day Work is delayed
Phase III - $5,000 / per calendar day Work is delayed

§1.5.2 Liquidated Damages, Remaining Work, All Phases and Final Completion: $1,000 / per calendar day Remaining Work is delayed

§1.6 Public Agency’s Agent: CONTRA COSTA COMMUNITY COLLEGE DISTRICT (“District”)

§1.7 Contract Sum: ___________ MILLION ___________ THOUSAND, ___________ HUNDRED DOLLARS and NO CENTS ($00,000,000.00)
2. **SCOPE OF WORK:**
This project includes a) the Physical Education, a 30,000 gsf one-story building with weight room, fitness spaces, dance studios, locker rooms, equipment room, faculty offices, trainer’s office, and supporting building spaces; and b) the Student Union, a 35,400 gsf two-story building with a bookstore, small food services, a large conference room that can be subdivided to smaller rooms, a student activity space, faculty offices, student lounge, and supporting building spaces.

Phase II consists of the completion of both buildings and associated site work as depicted in the contract documents. Phase III consists of the completion of site work following the removal of the temporary portable buildings as depicted in the contract documents.

3. **WORK CONTRACT, CHANGES**
(a) By their signatures below, effective on the above date, these parties promise and agree as set forth in this Agreement, incorporating by these references labor and materials contained in Section 2, Scope of Work.
(b) Contractor shall, at Contractor's own cost and expense, and in a workmanlike manner, fully and faithfully perform and complete the work; and will furnish all materials, labor, services, equipment, and transportation necessary, convenient and proper in order fairly to perform the requirements of this contract, all strictly in accordance with the Public Agency's plans, drawings and specifications.
(c) The work can be changed only with Public Agency's prior written order specifying such change and its cost agreed to by the parties; and the Public Agency shall never have to pay more than specified in Section 1.7 without such an order.

4. **TIME: NOTICE TO PROCEED AND ACCEPTANCE**
(a) Contractor shall start this work as directed in the specifications or the Notice to Proceed and shall complete it as specified in Section 1, Completion Time.
(b) Partial Acceptance – If at any time during the prosecution of the project, the Contractor substantially completes the Phase of Work of the Project, the Contractor may request the District to make an inspection of the Phase of Work. If the District finds upon inspection that the Phase of Work has been satisfactorily completed in compliance with the contract, the District may accept that Phase of Work as being completed provided that the Contractor shall remain responsible for completion of any Remaining Work of such Phase of the Project. Phases of Work of the project eligible for the Partial Acceptance allowed in this paragraph shall be identified specifically in the Contract Documents as Phases of Work to be eligible for Partial Acceptance. Such Partial Acceptance shall in no way void or alter any of the terms of the Contract.
(c) Remaining Work after Substantial Completion. If the Architect or District determines that the work required by the Contract is Substantially Complete during any inspection conducted pursuant to this Agreement or Specification Section 01770, Contract Closeout Procedures, the Contractor shall be notified of that determination and the District shall determine if there is Remaining Work. A list of Remaining Work shall be issued only by the District or the Architect and only after the District has certified Substantial Completion. The District or Architect shall give the Contractor the necessary instructions for correction or completion of the Remaining Work, and the Contractor shall immediately comply with and execute such instructions within the Contract Time. Upon completion of the Remaining Work, another inspection shall be made that shall constitute the Final Inspection.
provided the Remaining Work has been completed to the satisfaction of the District. If the remaining work has been completed to the satisfaction of the District, the District shall make the final acceptance and notify the Contractor in writing of this acceptance as of the date of Final Inspection.

(d) Final Acceptance – Upon due notice from the Contractor of completion of the entire project, the District shall make an inspection. If all construction provided for and contemplated by the contract is found to be completed to the District’s satisfaction then that inspection shall constitute the Final Inspection and the District shall notify the Contractor in writing of final acceptance effective as of the date of the Final Inspection.

(e) Default for failure to Complete Remaining Work In the event the Contract Time expires before the Remaining Work is completed to the satisfaction of the District, the District may provide notice to the Contractor that the Remaining Work shall be completed by Contractor to the satisfaction of the District within ten consecutive calendar days from the date of such notice. The failure of the Contractor to satisfactorily complete the Remaining Work within the ten days shall entitle to District to declare Contractor in default and thereafter terminate the Contract. The ten-day notice provided under this paragraph shall not be construed as adding any time to the Contract Time and is a time period solely for the purposes of providing notice of default.

(f) Application for Final Payment. After the Contractor has completed all Remaining Work to the satisfaction of the District and delivered all maintenance and operating instructions, schedules, guarantees, warranties, bonds, certificates of inspection, marked-up record documents and other documents as required by the Contract, and after the District or Architect has indicated that the work is acceptable, Contractor may make application for final payment following the Payments Procedures for progress payments. The final application for payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the District) of all liens arising out of or filed in connection with the work on the project.

(g) Final Payment and Acceptance. If the Architect determines that the work has been completed and the Contractor’s other obligations under the Contract have been fulfilled, the Architect shall, within ten working days after receipt of the final application for payment, indicate in writing the Architect’s recommendation of payment and present the application to District for payment. Thereupon the Architect shall prepare a Certificate of Final Completion. Otherwise, Architect shall return the application to Contractor indicating in writing the reasons for refusing to recommend final payment. Contractor shall make the corrections identified in the Architect’s refusal to recommend final payment. Thirty days after presentation to District of the application and accompanying documentation, with the Architect’s recommendation and notice of acceptability of the work, the amount recommended by Architect shall be come due and payable by District to Contractor.

5. **LIQUIDATED DAMAGES**

5.1 **LIQUIDATED DAMAGES - SUBSTANTIAL COMPLETION**
If the Contractor fails to complete this contract and this Work or Phase of Work within the time fixed therefore, allowance being made for contingencies as provided herein, Contractor becomes liable to the Public Agency for all its loss and damage there from; and because, from the nature of the case, it is and will be impracticable and extremely difficult to ascertain and fix the Public Agency's actual damage from any delay in performance hereof, it is agreed that Contractor will pay as liquidated damages to the Public Agency the reasonable sum specified in Section 1, the result of the parties’ reasonable endeavor to estimate fair average compensation therefore, for each calendar day's delay in finishing said Work or Phase of Work; and if the same be not paid, Public Agency may, in addition to its other remedies, deduct the same from any money due or to become due Contractor under this Contract. If the Public Agency for any cause authorizes or contributes to a delay, suspension of work or extension of time, its duration shall be added to the time allowed for completion, but it shall not be deemed a waiver nor be used to defeat any right of the Agency to damages for non-completion or delay hereunder. Pursuant to Government Code Section 4215, the Contractor shall not be assessed liquidated damages for delay in completion of the work, when such delay was caused by the failure of the Public Agency or the owner of a utility to provide for removal or relocation of existing utility facilities.

5.2 LIQUIDATED DAMAGES-THE REMAINING WORK.

The Remaining Work, as such work is determined by the Public Agency or Public Agency’s Representative, shall be completed within the Contract Time or any proper extension thereof granted by Public Agency. If the Contractor shall neglect, fail or refuse to complete the Remaining Work within the Contract Time or any proper extension thereof granted by the Public Agency, then the Contractor does hereby agree, as part consideration for the awarding of this Contract, to pay to the Public Agency the amount specified in the Contract, not as a penalty but as liquidated damages for the Remaining Work for each such breach of Contract set forth herein for each and every consecutive calendar day that the Contractor shall be in default after expiration of the Contract Time.

6. INTEGRATED DOCUMENTS

The plans, drawings and specifications and special provisions of the Public Agency's Notice Inviting Bids, and Contractor's accepted bid for this work are hereby incorporated into this Contract; and they are intended to cooperate, so that anything exhibited in the plans or drawings and not mentioned in the specifications or special provisions, or vice versa, is to be executed as if exhibited, mentioned and set forth in both, to the true intent and meaning thereof when taken all together; and differences of opinion concerning these shall be finally determined by the Public Agency.

7. PAYMENT

(a) For strict and literal fulfillment of these promises and conditions, and full compensation for all this work, the Public Agency shall pay the Contractor the sum specified in Section 1, except that in unit price contracts the payment shall be for finished quantities at unit bid prices.

(b) On or about the first day of each calendar month, the Contractor shall submit to the Public Agency a verified application for payment, supported by a statement showing all materials actually installed during the preceding month, the labor expended thereon, and the cost thereof; whereupon, after checking, the Public Agency shall issue to Contractor a certificate for the amount determined to be due, minus ten (5%) percent thereof pursuant to the Public Agency’s General
Terms and Conditions, but not until defective work and materials have been removed, replaced and made good.

8. **PAYMENTS WITHHELD**

   (a) The Public Agency or its agent may withhold any payment, or because of later discovered evidence nullify all or any certificate for payment, to such extent and period of time only as may be necessary to protect the Public Agency from loss because of:

   (1) Defective work not remedied, or work not completed, or
   (2) Claims filed or reasonable evidence indicating probable filing, or
   (3) Failure to properly pay subcontractors or for material or labor, or
   (4) Reasonable doubt that the work can be completed for the balance then unpaid, or
   (5) Damage to another contractor, or
   (6) Damage to the Public Agency, other than damage due to delays.

   (b) The Public Agency shall use reasonable diligence to discover and report to the Contractor, as the work progresses, the materials and labor which are not satisfactory to it, so as to avoid unnecessary trouble or cost to the Contractor in making good any defective work or parts.

   (c) Thirty-five (35) calendar days after Public Agency files its notice of completion of the entire work, it shall issue a certificate to the Contractor and pay the balance of the contract price after deducting all amounts withheld under this contract, provided the Contractor shows that all claims for labor and materials have been paid, no claims have been presented to the Public Agency based on acts or omissions of the Contractor, and no liens or withhold notices have been filed against the work or site, and provided there are not reasonable indications of defective or missing work or of late-recorded notices of liens or claims against Contractor.

9. **INSURANCE**

   1. Refer to Section 00700 Article 11 INSURANCE AND BONDS for Contract Insurance Requirements (ADD. # 4)

10. **BONDS**

    **Bond Requirements:** Prior to commencing any portion of the Work, the Contractor shall furnish separate payment and performance bonds for its portion of the Work which shall cover 100% faithful performance of and payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. All bonds shall be provided by a corporate surety authorized and admitted to transact business in California as sureties.

    To the extent, if any, that the Contract Price is increased in accordance with the Contract Documents, the Contractor shall, upon request of the Public Agency, cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the Public Agency. To the extent available, the bonds shall further provide that no change or alteration of the Contract Documents (including, without limitation, an increase in the Contract Price, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor will
release the surety. If the Contractor fails to furnish the required bonds, the Public Agency may terminate the Contract for cause.

On signing this contract, Contractor shall deliver to Public Agency for approval good and sufficient bonds with sureties, in amount(s), specified in the specifications or special provisions, guaranteeing faithful performance of this contract and payment for all labor and materials hereunder.

11. FAILURE TO PERFORM

If the Contractor at any time refuses or neglects, without fault of the Public Agency or its agent(s), to supply sufficient materials or workers to complete this agreement and work as provided herein, for a period of ten days or more after written notice thereof by the Public Agency, the Public Agency may furnish same and deduct the reasonable expenses thereof from the contract price.

12. LAWS APPLY: General

Both parties recognize the applicability of various federal, state and local laws and regulations, especially Chapter 1 of Part 7 of the California Labor Code (beginning with Section 1720, and including Sections 1735, 1777.5, 1777.6, forbidding discrimination) and intend that this agreement complies therewith. The parties specifically stipulate that the relevant penalties and forfeitures provided in the Labor Code, especially in Sections 1775, 1776, and 1813, concerning prevailing wages and hours, shall apply to this agreement as though fully stipulated herein.

13. SUBCONTRACTORS

Public Contract Code Sections 4100-4113 are incorporated herein.

14. WAGE RATES

(a) Pursuant to Labor Code Section 1773, the Director of the Department of Industrial Relations has ascertained the general prevailing rates of wages per diem, and for holiday and overtime work, in the locality in which this work is to be performed, for each craft, specified in the call for bids for this work and are on file with the Public Agency, and are hereby incorporated herein.

(b) This schedule of wages is based on a working day of eight (8) hours unless otherwise specified; and the daily rate is the hourly rate multiplied by the number of hours constituting the working day. When less than that number of hours are worked, the daily wage rage is proportionately reduced, but the hourly rate remains as stated.

(c) The Contractor, and all subcontractors, must pay at least these rates to all persons on this work, including all travel, subsistence, and fringe benefit payments provided for by applicable collective bargaining agreements. All skilled labor not listed above must be paid at least the wage scale established by collective bargaining agreement for such labor in the locality where such work is being performed. If it becomes necessary for the Contractor or any subcontractor to employ any person in a craft, classification or type of work (except executive, supervisory, administrative, clerical or other non-manual workers as such) for which no minimum wage rate is specified, the contractor shall immediately notify the Public Agency which shall promptly determine the prevailing wage rate therefore and furnish the Contractor with the minimum rate based thereon, which shall apply from the time of the initial employment of the person affected and during the continuance of such employment.
15. **HOURS OF LABOR**

Eight hours of labor in one calendar day constitutes a legal day's work, and no worker employed at any
time on this work by the Contractor or by any subcontractor shall be required or permitted to work longer
thereon except as provided in Labor Code Sections 1810-1815.

16. **APPRENTICES**

Properly indentured apprentices may be employed on this work in accordance with Labor Code
Sections 1777.5 and 1777.6, forbidding discrimination.

17. **PREFERENCE FOR MATERIALS**

The Public Agency desires to promote the industries and economy of Contra Costa County, and the
Contractor therefore promises to use the products, workers, laborers and mechanics of this County in
every case where the price, fitness and quality are at least equal.

18. **ASSIGNMENT**

This agreement binds the heirs, successors, assigns, and representatives of the Contractor; but
Contractor cannot assign it in whole or in part, nor any monies due or to become due under it, without
the prior written consent of the Public Agency and the Contractor's surety or sureties, unless they have
waived notice of assignment.

19. **NO WAIVER BY PUBLIC AGENCY**

Inspection of the work and/or materials, or approval of work and/or materials inspected, or statement
by any officer, agent or employee of the Public Agency indicating the work or any part thereof complies
with the requirements of this contract, or acceptance of the whole or any part of said work and/or
materials, or payments therefore, or any combination of these acts, shall not relieve the Contractor of
Contractor's obligation to fulfill this contract as prescribed; nor shall the Public Agency be thereby
stopped from bringing any action for damages or enforcement arising from the failure to comply with
any of the terms and conditions hereof.

20. **HOLD HARMLESS AND INDEMNITY**

(a) Contractor promises to and shall hold harmless and indemnify from the liabilities as defined in this
section.

(b) The indemnities benefited and protected by this promise are the Public Agency and its elective and
appointive boards, commissions, officers, agents and employees.

(c) The liabilities protected against are any liability or claim for damage of any kind allegedly suffered,
incurred or threatened because of actions defined below, including personal injury, death,
property damage, inverse condemnation, or any combination of these, regardless of whether or
not such liability, claim or damage was unforeseeable at any time before the Public Agency
approved the improvement plan or accepted the improvements as completed, and including the defense of any suit(s) or action(s) at law or equity concerning these.

(d) The actions causing liability are any act or omission (negligent or non-negligent) in connection with the matters covered by this contract and attributable to the contractor, subcontractor(s), or any officer(s), agent(s), or employee(s) of one or more of them.

(e) Non-conditions: The promise and agreement in this section is not conditioned or dependent on whether or not any Indemnities has prepared, supplied, or approved any plan(s), drawing(s), specifications(s) or special provision(s) in connection with this work, has insurance or other indemnification covering any of these matters, or that the alleged damage resulted partly from any negligent or willful misconduct of any Indemnities.

21. EXCAVATION

Contractor shall comply with the provisions of Labor Code Section 6705, if applicable, by submitting to Public Agency a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during trench excavation.

22. GOVERNMENT CODE SECTION 10532

Contractor shall be subject to the examination and audit of the Auditor General for a period of three years after final payment under the contract.

23. WARRANTY

(a) In addition to any other warranties or guaranties in the Contract Documents, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the Work or Phase of Work, unless otherwise provided or extended in the Contract Documents. If the District takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the District takes possession.

(c) The Contractor shall remedy at the Contractor’s expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor’s expense any damage to District-owned or controlled real or personal property, when that damage is the result of—

(1) The Contractor’s failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor’s warranty with respect to work repaired or replaced will run for 1 year or as otherwise provided or extended from the date of repair or replacement.
(e) The District shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the District shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor’s expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall—

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the District, if directed by the District; and

(3) Enforce all warranties for the benefit of the District, if directed by the District.

(h) In the event the Contractor’s warranty under paragraph (b) of this clause has expired, the District may bring suit at its expense to enforce a subcontractor’s, manufacturer’s, or supplier’s warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the District nor for the repair of any damage that results from any defect in District-furnished material or design.

(j) This warranty shall not limit the District’s rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

24. CONSEQUENTIAL DAMAGES

The Contractor and Public Agency waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

(a) Damages incurred by the Public Agency for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

(b) Damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party’s termination. Nothing contained in this subparagraph shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

25. HAZARDOUS MATERIALS
(a) If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos, lead or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Public Agency in writing.

(b) The Public Agency shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. The Public Agency shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written notification from the Public Agency and Contractor. The Contract Time shall be extended appropriately.

26. SAFETY

a. Safety Programs. In addition to and as required by other Sections of the Contract Documents, the Contractor shall be solely responsible for initiating, maintaining and supervising all safety programs required by applicable law, ordinance, regulation or governmental orders in connection with the performance of the Contract, or otherwise required by the type or nature of the Work. The Contractor's safety program shall include all actions and programs necessary for compliance with California or federally statutorily mandated workplace safety programs, including without limitation, compliance with the California Drug Free Workplace Act of 1990 (California Government Code §§8350 et seq.). Without limiting or relieving the Contractor of its obligations hereunder, the Contractor shall require that its Subcontractors similarly initiate and maintain all appropriate or required safety programs. Prior to commencement of Work, the Contractor shall meet with the campus Buildings and Grounds Manager, Project Manager, and Construction Manager to review Contractor's safety precautions and implementation of safety programs during the Work.

b. Safety Precautions. In addition to and as required by other Sections of the Contract Documents, the Contractor shall be solely responsible for initiating and maintaining reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to: (i) employees on the Work and other persons who may be affected thereby; (ii) the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and (iii) other property or items at the site of the Work, or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction. The Contractor shall take adequate precautions and measures to protect existing roads, sidewalks, curbs, pavement, utilities, adjoining property and improvements thereon (including without limitation, protection from settlement or loss of lateral support) and to avoid damage thereto. Without adjustment of the Contract Price or the Contract Time, the Contractor shall repair, replace or restore any damage or destruction of the foregoing items as a result of performance or installation of the Work.
c. **Safety Signs, Barricades.** In addition to and as required by other Sections of the Contract Documents, the Contractor shall erect and maintain, as required by existing conditions and conditions resulting from performance of the Contract, reasonable safeguards for safety and protection of property and persons, including, without limitation, posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Districts and users of adjacent sites and utilities.

d. **Safety Notices.** In addition to and as required by other Sections of the Contract Documents, the Contractor shall give or post all notices required by applicable law and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

27. **PROJECT STABILIZATION AGREEMENT**

1. Definitions. As used in this clause— “Project Stabilization Agreement” (hereafter PSA) means a pre-hire collective bargaining agreement with one or more labor organizations that establishes the terms and conditions of employment for a specific construction project or set of projects.

2. The Contractor shall maintain in a current status, throughout the life of the Contract, the PSA included in these Construction Documents
   a. Subcontracts. The Contractor and subcontractors at all levels shall include the substance of this Project Stabilization Agreement clause, including this paragraph (c), in all subcontracts with subcontractors engaged in construction on the construction project.
   b. By accepting the award of a construction contract for a Project, whether as Contractor or subcontractor, the Contractor/Employer agrees to be bound by each and every provision of the PSA and agrees that it will evidence its acceptance prior to the commencement of work by executing the PSA Agreement to be Bound in the form attached to the PSA found in these Contract Documents.
   c. At the time that any Contractor/Employer enters into a subcontract with any subcontractor providing for the performance of a Construction Contract, the Contractor/Employer shall provide a copy of the PSA to said subcontractor and shall require the subcontractor as a part of accepting an award of a construction subcontract to agree in writing to be bound by each and every provision of this PSA, and agrees that it will evidence its acceptance prior to the commencement of work by executing the PSA Agreement to be Bound in the form attached to the PSA found in these Contract Documents. If a Contractor/Employer requires a subcontractor to agree in writing to comply with the terms of the PSA as a condition of awarding work to the subcontractor, the Contractor/Employer shall not be liable in any way for the subcontractor's failure to pay the wages and benefits required by the PSA except as required by the provisions of the California Labor Code.

3. Contractor shall, during each month that laborers are on site, from Notice to Proceed through Notice of Completion, report the following to the District as a monthly administrative submittal.
   a. Each instance during the reporting period of which a union is unable to fill a requisition for qualified employees thereby causing the Contractor to apply Article 8 REFERRAL, Clause 8.3, to obtain qualified employees.
   b. A summary of any and all efforts during the reporting period to comply with the goals of Article 10 LOCAL HIRE, and the results therefrom. Data from certified payroll records shall be summarized by reporting the number of hours worked by all journeymen and
apprentices on site, and the subset of the number of hours worked by journeymen and apprentices who are residents of Contra Costa County.

c. The number of new employees, journeymen and apprentices, during the reporting period which have been referred to the project by the Center for Military Recruitment, Assessment and Veterans Employment in accordance with Article 15 HELMETS TO HARDHATS.
28. SIGNATURES AND ACKNOWLEDGEMENT

Public Agency, By: _____________________________________________________

[edit]

Note to Contractor: (1) Execute acknowledgement form below, and (2) if a corporation, affix Corporate Seal.

Contractor, hereby also acknowledging awareness of and compliance with Labor Code S1861 concerning Worker's Compensation Law.

Contractor: By: _____________________________________________________ (CORPORATE SEAL)

(Designate Official Capacity – COMPANY NAME)

_____________________________________________________

Print NAME and TITLE

___________________  _____________________

License Number   Federal ID Number

NOTARY PUBLIC

=================================================================================================
PSA is attached at the end of Section 00600
END OF SECTION 00600
ARTICLE 11
INSURANCE AND BONDS (ADD. #4)

11.1 CONTRACTOR’S LIABILITY INSURANCE

11.1.1 Insurance Requirements

Before the commencement of the Work, the Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in California with a financial rating of at least an A-VIII status as rated in the most recent edition of Best’s Insurance Reports or as amended by the Supplementary General Conditions, such insurance as will protect the District from claims set forth below, which may arise out of or result from the Contractor’s Work under the Contract and for which the Contractor may be legally liable, whether such Work are by the Contractor, by a Subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Any required insurance shall not contain any exclusion that applies to the type of work performed by the Contractor under the Contract Documents.

a. Claims for damages because of bodily injury, sickness, disease, or death of any person District would require indemnification and coverage for employee claim;

b. Claims for damages insured by usual personal injury liability coverage, which are sustained by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor or by another person;

c. Claims for damages because of injury or destruction of tangible property, including loss of use resulting therefrom, arising from operations under the Contract Documents;

d. Claims for damages because of bodily injury, death of a person, or property damage arising out of the ownership, maintenance, or use of a motor vehicle, all mobile equipment, and vehicles moving under their own power and engaged in the Work;

e. Claims involving contractual liability applicable to the Contractor’s obligations under the Contract Documents, including liability assumed by and the indemnity and defense obligations of the Contractor and the Subcontractors; and

f. Claims involving Completed Operations, Independent Contractors’ coverage, and Broad Form property damage, without any exclusions for collapse, explosion, demolition, underground coverage, and excavating. (XCU)

g. Claims involving sudden or accidental discharge of contaminants or pollutants.

11.1.2 Specific Insurance Requirements

Contractor shall take out and maintain:
1. Comprehensive General Liability Insurance with a combined single limit per occurrence of not less than $5,000,000.00 or Commercial General Liability Insurance which provides limits of not less than:

   (a) Per occurrence (combined single limit) ................................................................. $5,000,000.00

   (b) Project Specific Aggregate (for this Project only) ..................................................... $10,000,000.00

   (c) Products and Completed Operations (aggregate) ...................................................... $5,000,000.00

   (d) Personal and Advertising Injury Limit ................................................................. $1,000,000.00

2. Insurance Covering Special Hazards

   The following Special hazards shall be covered by riders or riders to above mentioned public liability insurance or property damage insurance policy or policies of insurance, in amounts as follows:

   (a) Automotive and truck where operated in amounts .................................................. $1,000,000.00

   (b) Material Hoist where used in amounts .................................................................... $1,000,000.00

   (c) Explosion, Collapse and Underground (XCU coverage) ......................................... $1,000,000.00

   (d) Hazardous Materials ............................................................................................. $1,000,000.00

3. In addition, provide Excess Liability Insurance coverage in the amount of Four Million Dollars ($4,000,000.00).

11.1.3 Subcontractor Insurance Requirements

   The Contractor shall require its Subcontractors, whether primary or secondary to take out and maintain public liability insurance and property damage insurance required under Paragraph 11.1.1. A “claims made” or modified “occurrence” policy shall not satisfy the requirements of Paragraph 11.1.1 without prior written approval of the District.

   Contractor shall require all Subcontractors, if any, whether primary or secondary, to take out and maintain:
(a) Per occurrence (combined single limit) $5,000,000.00

(b) Project Specific Aggregate (for this Project only) $2,000,000.00

(c) Products and Completed Operations (aggregate) $1,000,000.00

(d) Personal and Advertising Injury Limit $1,000,000.00

Insurance Covering Special Hazards

The following Special hazards shall be covered by riders or riders to above mentioned public liability insurance or property damage insurance policy or policies of insurance, in amounts as follows:

(a) Automotive and truck where operated in amounts $1,000,000.00

(b) Material Hoist where used in amounts $1,000,000.00

(c) Explosion, Collapse and Underground (XCU coverage) $1,000,000.00

(d) Hazardous Materials $1,000,000.00

11.1.4 Additional Insured Endorsement Requirements

The Contractor shall name, on any policy of insurance required under Paragraph 11.1, the District, CM, Architect, Inspector, the State of California, their officers, employees, agents, volunteers and independent contractors as additional insureds. Subcontractors shall name the Contractor, the District, Architect, Inspector, the State of California, their officers, employees, agents, volunteers and independent contractors as additional insureds. The Additional Insured Endorsement included on all such insurance policies shall be an ISO CG 20 10 (04/13), or an ISO CG 20 38 (04/13), or their equivalent as determined by the District in its sole discretion, and must state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the additional insureds have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The insurance provided by the Contractor pursuant to Paragraph 11.1 must be designated in the policy as primary to any insurance obtained by the District. The amount of the insurer’s liability shall not be reduced by the existence of such other insurance.
11.2 **WORKERS’ COMPENSATION INSURANCE**

During the term of this Contract, the Contractor shall provide workers’ compensation and employer’s liability insurance for all of the Contractor’s employees engaged in Work under this Contract on or at the Site of the Project and, in case any of the Contractor’s Work is subcontracted, the Contractor shall require the Subcontractor to provide workers’ compensation insurance for all the Subcontractor’s employees engaged in Work under the subcontract. Any class of employee or employees not covered by a Subcontractor’s insurance shall be covered by the Contractor’s insurance. In case any class of employees engaged in Work under this Contract on or at the Site of the Project is not protected under the Workers’ Compensation laws, the Contractor shall provide or cause a Subcontractor to provide insurance coverage for the protection of those employees not otherwise protected. The Contractor shall file with the District certificates of insurance as required under Paragraph 11.6 and in compliance with Labor Code § 3700.

Workers’ compensation limits as required by the Labor Code, but not less than $1,000,000 and employers’ liability limits of $1,000,000 per accident for bodily injury or disease.

11.3 **BUILDER’S RISK/ “ALL RISK” INSURANCE**

11.3.1 **Course-of-Construction Insurance Requirements**

The Contractor, during the progress of the Work and until final acceptance of the Work by District upon completion of the entire Contract, shall maintain Builder’s Risk, Course of Construction or similar first party property coverage issued on a replacement cost value basis consistent with the total replacement cost of all insurable Work and the Project included within the Contract Documents. Coverage is to insure against all risks of accidental direct physical loss, and must include, by the basic grant of coverage or by endorsement, the perils of vandalism, malicious mischief (both without any limitation regarding vacancy or occupancy), fire, sprinkler leakage, civil authority, sonic boom, earthquake, flood, collapse, wind, lightning, smoke and riot. The coverage must include debris removal, demolition, increased costs due to enforcement of building ordinance and law in the repair and replacement of damage and undamaged portions of the property, and reasonable costs for the Architect’s and engineering services and expenses required as a result of any insured loss upon the Work and Project which is the subject of the Contract Documents, including completed Work and Work in progress, to the full insurable value thereof. Such insurance shall include the District and the Architect as additional named insureds, and any other person with an insurable interest as designated by the District.

The Contractor shall submit to the District for its approval all items deemed to be uninsurable. The risk of the damage to the Work due to the perils covered by the “Builder’s Risk/All Risk” Insurance, as well as any other hazard which might result in damage to the Work, is that of the Contractor and the Surety, and no Claims for such loss or damage shall be recognized by the District nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

11.4 **FIRE INSURANCE**

Before the commencement of the Work, the Contractor shall procure, maintain, and cause to be maintained at the Contractor’s expense, fire insurance on all Work subject to loss or damage by fire. The amount of fire insurance shall be sufficient to protect the Project against loss or damage in...
full until the Work is accepted by the District. This requirement may be waived upon confirmation by the District that such coverage is provided under the Builder’s Risk Insurance being provided.

11.5 AUTOMOBILE LIABILITY

11.5.1 The District, Architect and Construction Manager, Inspectors, their directors, officers, employees, agents and volunteers shall be covered as additional insureds with respect to the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Contractor or for which the Contractor is responsible. Such insurance coverage shall be primary and non-contributory insurance as respects the District, Architect, Construction Manager, Project Inspector, their directors, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of the Contractor’s scheduled underlying coverage. Any insurance or self-insurance maintained by the District, Architect, Construction Manager, Project Inspector, their directors, officers, employees, agents and volunteers shall be excess of the Contractor’s insurance and shall not be called upon to contribute with it. The insurer shall agree to waive all rights of subrogation against the District, Architect, Construction Manager, Project Inspector, their directors, officers, employees, agents and volunteers for losses paid under the terms of the insurance policy that arise from Work performed by the Contractor.

11.5.2 Insurance Services Office Business Auto Coverage Form Number CA 0001, Code 1 (any auto) is required. Comprehensive Automobile Liability insurance to include all autos, owned, non-owned, and hired, with limits of $1,000,000 per accident for bodily injury and property damage.

11.6 OTHER INSURANCE

The Contractor shall provide all other insurance required to be maintained under applicable laws, ordinances, rules, and regulations.

11.7 PROOF OF INSURANCE

The Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract until all required insurance and certificates have been obtained and delivered in duplicate to the District for approval subject to the following requirements:

a. Certificates and insurance policies shall include the following clause:

“This policy and any coverage shall not be suspended, voided, non-renewed, canceled, or reduced in required limits of liability or amounts of insurance or coverage until notice has been mailed via certified mail to the District. Date of cancellation or reduction may not be less than thirty (30) days after the date of mailing notice.”

b. Certificates of insurance shall state in particular those insured, the extent of insurance, location and operation to which the insurance applies, the expiration date, and cancellation and reduction notices.
c. Certificates of insurance shall clearly state that the District and the Architect are named as additional insureds under the policy described and that such insurance policy shall be primary to any insurance or self-insurance maintained by District.

d. The Contractor and its Subcontractors shall produce a certified copy of any insurance policy required under this Section upon written request of the District.

11.8 COMPLIANCE

In the event of the failure of Contractor to furnish and maintain any insurance required by this Article 11, the Contractor shall be in default under the Contract. Compliance by Contractor with the requirement to carry insurance and furnish certificates or policies evidencing the same shall not relieve the Contractor from liability assumed under any provision of the Contract Documents, including, without limitation, the obligation to defend and indemnify the District and the Architect.

11.9 WAIVER OF SUBROGATION

Contractor waives (to the extent permitted by law) any right to recover against the District for damages to the Work, any part thereof, or any and all claims arising by reason of any of the foregoing, but only to the extent that such damages and/or claims are covered by property insurance and only to the extent of such coverage (which shall exclude deductible amounts) by insurance actually carried by the District.

The provisions of this Article are intended to restrict each party to recovery against insurance carriers only to the extent of such coverage and waive fully and for the benefit of each, any rights and/or claims which might give rise to a right of subrogation in any insurance carrier. The District and the Contractor shall each obtain in all policies of insurance carried by either of them, a waiver by the insurance companies thereunder of all rights of recovery by way of subrogation for any damages or claims covered by the insurance.

11.10 PERFORMANCE AND PAYMENT BONDS

11.10.1 Bond Requirements

Unless otherwise specified in the Supplemental Conditions, prior to commencing any portion of the Work, the Contractor shall furnish separate Payment and Performance Bonds for its portion of the Work which shall cover 100% faithful performance of and payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. All bonds shall be provided by a corporate Surety authorized and admitted to transact business in California as sureties.

To the extent, if any, that the Contract Price is increased in accordance with the Contract Documents, the Contractor shall, upon request of the District, cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the District. To the extent available, the bonds shall further provide that no change or alteration of the Contract Documents (including, without limitation, an increase in the Contract Price, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor will
release the Surety. If the Contractor fails to furnish the required bonds, the District may terminate the Contract for cause.

11.10.2 **Surety Qualification**

Only bonds executed by admitted Surety insurers as defined in Code of Civil Procedure § 995.120 shall be accepted. Surety must be a California-admitted Surety and listed by the U.S. Treasury with a bonding capacity in excess of the Project cost.

11.10.3 **Alternate Surety Qualifications**

If a California-admitted Surety insurer issuing bonds does not meet these requirements, the insurer will be considered qualified if it is in conformance with § 995.660 of the California Code of Civil Procedure and proof of such is provided to the District.
Section 01316
BUILDING INFORMATION MODELING (BIM)-CONSTRUCTION MODEL REQUIREMENTS

1. General
The contractor shall create construction models that shall be used for the coordination of all trades. There will be two separate construction models. This first model will be for the Physical Education Building. The second model will be for the Student Union Complex. The contractor shall be responsible for providing accurate as built information on a timely manner for the duration of the project. Contractor will be allowed to use a design model as a reference. The design intent model is only for reference purposes and the Revit electronic model file cannot be used as the basis for the construction model either through copying and pasting Revit objects or by renaming the Revit file name. The design model will contain the Revit objects and floor plan and elevation views but will not contain sheets, sections views, and detail (annotation) views. It is expected that the contractor will create these BIM elements as part of creating the construction model.

Construction model is to be created new from the construction documents, shop drawing models, fabrication models, and any coordination model. At a minimum once a week during construction the updated construction model will be published and posted to the BIM 360 Glue Site. The contractor shall be responsible for providing and maintaining the BIM 360 Glue site for the duration of the construction and closeout of the project. However, the District shall have administrative rights to the BIM 360 Glue site.

Contractor will provide a total (5) five licenses of BIM 360 Glue for use by the District, the Construction Manager and the Design Team members. The licenses are to be provided within 15 days of Contractor award. The licenses will remain active for the entire duration of the project and for an additional six months after Final Acceptance of the building.

Contractor will provide all needed Revit, Navisworks and BIM 360 Glue licenses for their own forces as well as for subcontractors.

2. BIM Execution Plan
The Contractor shall review the Design team’s BIM execution plan and submit questions within thirty (30) days of contract award. The design team and the District shall review and respond to the request within (14) days of submittal.

Contractor will submit an outline of the Construction BIM Execution Plan within (15) days of contractor award. Within (45) days of contractor award the Contractor will submit the Construction BIM Execution Plan. The format and scope of the Construction BIM Execution Plan will be similar to the Design Team’s BIM Execution Plan but will contain information specific to creating construction models and will confirm the BIM requirements listed in Section 01316. The design team and the District shall review and respond with any
comments to the submitted Construction BIM Execution Plan within (14) days of submittal.

Within (10) days of the Construction BIM Execution Plan being accepted the Contractor will hold a Construction BIM Execution Plan Kick Off Meeting. All key subcontractors, the Contractor’s BIM Manager, Architect, Construction Manager and the District will be invited to the meeting. The purpose of the meeting will be to review the Construction BIM Execution Plan.

3. **Collision Reports**

The Contractor is to use Navisworks Manage software for collision reporting. Collision reports from Navisworks should be published weekly in a standard XML, HTML, or Text format as created by Navisworks. These reports shall include the following information at a minimum:

- Description of Collision Report
- Date of Collision Report Run
- List of all Collisions detected, their status, and their proposed solution.

All Navisworks collision information will be uploaded to the BIM 360 Glue Site. At the Contractor’s option the Contractor can use BIM 360 Glue for collision reporting if in certain situations it is more suitable or expedient than Navisworks.

4. **Concurrent As-Builts**

   **General**

   The contractor shall submit a plan to the District for review, prior to the start of construction that outlines the process for concurrent as-built documentation. Concurrency is mandated. Methods for recording as-built information are left to the discretion of the contractor. Potential options include traditional methods, and/or periodic laser scanning of completed or partially completed primary systems coordinated with the sequence of construction. Primary systems include, but may not be limited to: structural framing, primary HVAC duct runs, primary fire protection main runs, primary electrical conduits (larger than ¾” diameter), and ceiling grids layouts. This information should also be included in the Construction BIM Execution Plan.

5. **Scheduling**

   The sequence of concurrent as-builts shall be recorded in the contractor’s project schedule as a line item event.
6. **Commissioning Requirements**

Commissioning data including but not limited to design intent, performance criteria and operations data shall be recorded and/or linked to the BIM Compliant model as commissioning occurs throughout the project. Commissioning requirements shall be coordinated with the requirements noted in the construction documents. It shall be the contractor’s responsibility to coordinate the information sources and integrate this information into the BIM Compliant model for transfer at the completion of the project.

7. **Terminology**

**As-Built Documents**
As-built documents are the collection of paper drawings or electronic drawings that typically reside in the contractor’s onsite trailer that contain mark-ups, annotations, and comments about changes that have been made to the contract documents during the construction phase.

**As-Built Model**
Design Intent Models that have been updated throughout the construction process. These changes and updates have been communicated from the Contractor to the Design Team through the comments, annotations, and mark-ups from the As-Built Documents. These typically, but not always, are discipline specific models.

**BIM Execution Plan (BEP)**
A plan that is created from Design BIM Execution Plan. The BEP helps to define roles and responsibilities within a project team.

**Critical Path Modeling**
Critical Path Modeling is a method of demonstrating Integrated Project Delivery. It sets a plan within the design team that accounts for the activities of each discipline and how they interact with each other. It builds upon a critical path method for those activities, and allows the project team to schedule a complete project.

**Design Team**
The Design Team is considered to be the Architect and all of the consultants that provide design services for a project. These design services can be rendered at any time during the project.

**.DWF** is a file type that was developed by Autodesk to be locked file for drawing sheets and model data. It can be used as a file transfer for estimating data, markups, and other third party software. It can be a combination of 3D and 2D information within the same file.
.DWG is a native AutoCAD file format. It is a widely used file format for exchanging drawing information and 3D information to different programs. While not a database file type, it still has lots of uses for exchanging information.

A .GBxml file is a Green Building file type. It is used to run simulations through energy modeling software. It is a widely accepted file format for those types of software.

LEED
The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a suite of standards for environmentally sustainable construction. Based on a point system, a building can achieve different ratings based on the performance of the design, construction, and operation of the building.

Navisworks
Navisworks is software that allows for the viewing of multiple model formats. This ability to “view” these files also allows for Navisworks to simulate the interaction between model files. That includes collision reporting, time lining, and coordination.

An .NWC file is a Navisworks Cache File that is used by Navisworks to quickly read many other file types. All linked files in Navisworks have an .NWC file created automatically. In addition, Revit will export directly to the very small file type of .NWC for quick access by Navisworks.

A much larger file than the .NWC, the .NWD file shows a snapshot in time of Navisworks file. No linked files exist but all geometry is included.

The .NWF file is a native Navisworks file which has all linked files, clashes, markups, animations, schedules, etc.

Record Drawing
The production of Record Drawings is the capturing of the As-Built Document’s annotation, comments, and mark-ups in a drawing format only. This does not typically include the updating of any models.

.RVT
An .RVT file is a native REVIT file type. It is also the deliverable file format for all projects. This includes all of the Design Team’s models.
8. Project Closeout

1. As part of the closeout process the Contractor will submit the following to the District:

   A. Scanned Field Set Drawings – As-Builts (.tif format)
   B. O&M Manuals (paper/.pdf/excel format)
   C. Coordination Models in their native file format

9. Contractor’s Key BIM Personnel

1. The Contractor must have a BIM Manager on staff with at least 3 years of proven construction coordination experience with projects similar in size a scope to District project. Submit the BIM Managers resume at the same time of the Contractor’s Project Manager or Superintendent. The BIM Manager’s responsibilities include, but are not limited to the following as well as Sub-Section 10 below:
   a. Lead the BIM Construction Coordination Team and be the main point of contact for the coordination process.
   b. Ensure all BIM Construction Team Members follow the requirements of the District’s BIM Guidelines and the Contractor’s BIM Execution Plan.
   c. Ensure the BIMs are of optimum quality and appropriate level of development (LOD) for the current BIM Coordination activities.
   d. Make sure all models from all disciplines are uploaded according to the BIM Coordination Schedule on time and in the correct file formats.
   e. Assemble all discipline’s BIMs into a Consolidated Model for coordination.
   f. Maintain the master Construction BIM coordination files with all disciplines integrated on a BIM Collaboration Server.
   g. Provide regular Clash Reporting for BIM Construction Team members and other project stakeholders to review.
   h. Deliver a clash-free fully coordinated Consolidated BIM Model.
   i. Have a solid working knowledge of AEC BIM collaboration software and any other software tools to be used for BIM and model checking.
j. Serve as the Point of Contact for all internal and external BIM’s with District and the Design Team.

k. Have pro-active approach to problem solving and ensuring that everyone has what they need when they need it.

10. Construction Roles and Responsibilities

1. Roles

10.1.1. BIM Manager: BIM Manager for Contractor

1. Management and implementation of the BIM Coordination process.

2. Administer access to BIM and the tools used to facilitate the coordination process.

3. Identify major coordination issues through the use of clash detection.

4. Provide markups of the model within the coordination tool.

5. Facilitate team in resolving issues by offering solutions to conflicts.

6. Assist the team with clashes that could not be resolved in trade-to-trade coordination.

7. Create sign-off files and narratives.

8. Provide extensive support as it relates to software and workflow.

10.1.2. Trade Coordinator: Each trade shall have a lead contact and decision maker who will be required to attend coordination meetings.

1. Make decisions for movements in coordination to resolve clashes.

2. Verify that components are modeled to the correct Level of Detail (LOD) and match submittal data.

3. Run independent clash detection within the collaborative software chosen by Contractor after each daily update.

4. Create markups to be reviewed during coordination meetings, and communicate with other trades in an attempt to resolve the markups.
5. Evaluate constructability, sequencing, installation requirements, and means and methods of systems that are considered and incorporated in the model effort during coordination.

6. Ultimately responsible for making sure models are being uploaded on time and are complete.

7. Ensure uploads are completed on time, as requested by BIM Manager.

8. Provide shop drawings for sign off of each phase of BIM.

9. Provide equipment submittals and/or cut sheets when requested.

10. Ensure that the standards listed in this document are met before each upload.

10.1.3. Trade Modeler: Main modeler for each respective trade (responsibilities may be merged with Trade Coordinator).

1. Modeling of trade systems and components.

2. Required to attend coordination meetings as needed.

3. Coordinate adjustments to the model to resolve clashes.

4. Upload models daily and when requested by BIM Manager or Trade Coordinator

5. Provide quality control of responsible models to be used in BIM.

11. **Construction Models and Development**

This BIM is known as the “Construction Model”. It includes models provided by of the subcontractors, which will be managed and kept current by the Contractor through the lifecycle of the project with all resolved constructability issues, Change Orders and RFI’s for the record set. The construction models are to be developed with fabrication software. There should not be a conversion process from construction to fabrication unless agreed upon by the contractor. This is to avoid problems with the conversion as well as identify constructability issues within the design during the population process of each model.

**Naming Convention**

11.1.1. File Naming

A. All caps, single dashes, no underscores, no spaces, no dates, no project numbers.

B. The internal file name is the same name uploaded to BIM 360 Glue.

11.1.2. Layer or Workset Naming

1. Layers should be descriptive of the elements they contain:

A. For Example: PL-DCW-Valves = Plumbing – Domestic Cold Water – Valves

B. For Example: PL-DCW-Valves-Clear = Plumbing – Domestic Cold Water – Valves – Clearances

11.1.3. Object naming

1. Any element or component name within a model shall reflect the component or system installed

2. For Example: A block modeled to represent an AHU should have the AHU number associated with it in the naming convention (AHU1).

2. Modeling Standards

11.2.1. Project Origin

1. The civil Engineer will provide Control Points to be used by the Design team as a reference for developing the project gridlines and setting the survey point and base point in Revit for the project.

2. The project origin (X,Y,Z) will be defined in the Architectural Design Intent Model. Usually, this will be located at one corner of the property line boundary.

3. It is the Architect responsibility to verify the accuracy of the coordinates and to provide a grid intersection at 0,0,0 for all other team members.

11.2.2. Worksets / Layers

1. All Revit models will be “shared projects” (worksets enabled).

2. An existing model shall be an exception to this standard.

11.2.3. Levels & Grids

1. All Levels and Grids must be “Copy-Monitored” from the architectural model, and remain “Monitored” throughout the project.
2. All Levels and Grids must be located on the “Shared Levels and Grids” workset / layers. This allows other project participants to easily hide the grids from linked models.

11.2.4. Model Sharing

1. Tool

A. The project will be using BIM 360 Glue to facilitate and coordinate the models produced.

B. BIM 360 Glue will host all of the most current and design models from each participating discipline.

2. Folder Structure and models

A. See appendix “A” for file folder structure

B. The naming of the models uploaded to the corresponding discipline folder shall stay consistent

C. The location shall be verified after each upload. See appendix “H” for upload workflow

11.2.5. Reference Levels

1. All objects should be placed on the correct reference level or floor level

2. If objects are elevated above reference levels, they should be referenced from the proper elevation callout. This ensures proper collaboration and integration of the BIM with the project team and their respected software.

11.2.6. Object Heights

1. All objects modeled should fall within the proper reference levels. For example walls, both exterior and interior functioning should be modeled to begin at floor height and continue only to the elevation reference line directly above.

11.2.7. DO NOT MODEL OBJECTS TWICE

1. One exception may be when a vertical pipe is passing floor to floor, it is beneficial to verify that the location below matches the location above

11.2.8. Analytical Objects
1. All referenced objects that do not pertain to the model it is located within should be excluded from uploads

2. Use Xref’s or links to eliminate having to clean the model at every point of upload

11.2.9. Purging Models

1. When uploading or sharing a model, there should not be any of the following:

   A. floating objects
   
   B. objects that do not pertain to the model
   
   C. layers that do not contain any components

11.2.10. Object Types

1. Floors

   A. All floors should be modeled at the right reference plane to ensure proper dimensioning and takeoff.
   
   B. Shafts and vertical opening should be used to cut voids through horizontal planes. Editing the face of each wall should be discouraged unless reasoning dictates the cut should be made.
   
   C. Floor thickness should reflect the slab and deck total thickness

2. Walls A.

   Types

   11.2.10.2.A.1 Basic Walls - used to define architecture scope of interior and exterior walls.
   Structural Walls - used by the structural team to define shear walls and structural bearing walls.

   11.2.10.2.A.2 Curtain Wall Systems - exterior wall systems used to define assemblies that extend in heights above 9’-0”.

   11.2.10.2.A.3 Exterior Glazed Wall Systems - glass wall assembly systems

   11.2.10.2.A.4 Storefront Systems - glass wall assembly systems that are between 7’-0” to 9’-0”.

   11.2.10.2.A.5 Window Systems – glass window assembly systems that are between 7’-0” or less.
11.2.10.2.A.6 Fire Rated Walls – used to define the fire barrier within the wall

11.2.10.2.A.7 Shaft Walls – Used to define the shaft wall condition

11.2.10.2.A.8 By choosing the proper wall type, the team can ensure that all assembly codes and data information attached to each object will be correct.

11.2.10.2.A.9 All objects modeled should fall within the proper reference levels. Walls, both exterior and interior functioning, should be modeled to begin at floor height and continue only to the elevation reference line directly above.

11.2.10.2.A.10 Wall and Openings by Face should be utilized to cut voids through the vertical faces of wall assemblies. An “edit profile” command can be used if necessary, or if the “Wall Openings” and “Openings by Face” commands cannot create the desired object effect.

B. Object Description vs. Modeling/Drawings

C. All descriptions given to the object must match the objects parameters/data

D. Example: a description of a column footing will say “F7” to indicate a 7'-0" x 7'-0" x 3'-6" footing; the footing must be drawn/modelled to the description. This will ensure that all objects are correct in the BIM and be able to help the project team coordinate other systems that may run close to said objects.

E. Example: a description of a partition wall that terminates 6” above the ceiling plane. The wall should be drawn to terminate above the ceiling plane (wall height will be determined by Design Project Team).

11.2.11.Object Information Input

1. Object Function

A. Choose the function of the wall from the following categories using Uniformed codes:
   Interior

11.2.11.1.A.1 Exterior

11.2.11.1.A.2 Foundation

11.2.11.1.A.3 Retaining

11.2.11.1.A.4 Core-Shaft

11.2.11.1.A.5 Soffit

B. Choose the proper category for equipment such as:
11.2.11.1.B.1 Mechanical Equipment
11.2.11.1.B.2 Electrical Equipment
11.2.11.1.B.3 Fire Protection Equipment
11.2.11.1.B.4 Plumbing Equipment
11.2.11.1.B.5 Plumbing Fixtures
11.2.11.1.B.6 Electrical Fixtures

2. Data Integration

A. At a minimum, all information found on the stamped Record Set of 2D drawings is to be integrated. These fields are to include all information commonly found as (but not limited to): Notes, Schedules*, Type Mark, Description, Detail, Nameplate Data, Key Notes, Sheet Notes, SOO, Specific Nameplate Data.

11.2.11.2.A.1 Fully Developed Schedules* to include, but not limited to this sample set:

11.2.11.2.A.1.1 Lighting
11.2.11.2.A.1.2 Doors – full detail and ratings, assembly
11.2.11.2.A.1.3 Equipment – nameplate data set
11.2.11.2.A.1.4 Fire Alarm
11.2.11.2.A.1.5 Flow and control diagrams – locations, control points, notes
11.2.11.2.A.1.6 HVAC
11.2.11.2.A.1.7 Plumbing fixture schedule - associated data fields, notes
11.2.11.2.A.1.8 Plumbing systems components schedule DWV – detail, notes
11.2.11.2.A.1.9 Mechanical ventilation compliance – room name, number, type designation, air balance, ACH, exhaust, supply, volume, transfer, ceiling height, balance to corridor, etc.
11.2.11.2.A.1.10 Electrical Distribution
11.2.11.2.A.1.11 Panel schedules – panel full detail, system branch, isolation, service locations, load, feeder, voltage, etc.
11.2.11.2.A.1.12 Partition, Area Separation, and similar Rated Assemblies
B. All equipment (pumps, AHU, FCU, boilers, etc.) must include manufacturer specific information, within the model, and field verified for accurate representation in the model. Refer to LOD matrix Attachment #1 for more information.

C. All systems that are non-accessible must be field verified for location.

D. All items that have room number attributes shall have place holder for a second room number.

11.2.12 Logistics

1. All BIM Construction Team members involved in the construction model coordination process shall cooperate and compromise with one another to develop combined solutions that achieve the project’s goals and overall design intent.

2. As previously mentioned, the architectural, Structural and MEP design work will be made available with Revit 2018, respectively, and/or other details provided in 2D format. These backgrounds/models can be utilized by the subcontractors in the 2D and/or 3D environment. These construction models will be further detailed by the responsible subcontractors.

3. While populating, each trade should be in conversation with the trades around them.

4. Coordination outside of the BIM meetings will be required for items such as, but not limited to, housekeeping pads, IT equipment, and small conflicts between 2 trades.

11.2.13 Scheduling

1. Contractor will develop a modeling/coordination schedule that will align with the overall construction schedule. Contractor will be required to maintain this schedule so that the modeling/coordination schedule and the overall construction schedule are maintained.

11.2.14 Coordination Concept

1. Construction Coordination

A. Clash Detection

11.2.14.1.A.1 Software will analyze the BIM for physical interferences (clashes) between building systems and components. Construction level clash detection results in a reduction of field conflict, RFI’s, and change orders. Coordination with off-site prefabricated components is improved. Construction helps avoid budget and schedule conflicts.
B. Clearance Checking

11.2.14.1.B.1 It is accomplished by adding a clearance element, on a separate layer, to the model that requires a clearance. Modeling and clashing equipment clearances helps identify access, installation and code related clearances for facilities management and maintenance.

C. Clash Resolution

11.2.14.1.C.1 Conflicts found during clash detection need to be resolved within the fabrication BIM authoring platform in order to be incorporated into shop drawings. Virtually solving the issue ahead of time avoids costly errors and revisions as well as schedule impacts and occupancy delays.

D. Coordination Sign-Off

11.2.14.1.D.1 After construction coordination is complete, a set of 2D and 3D coordination drawings are to be created with the BIM Construction Team and Architect submittal review.

11.2.15 Modeling Requirements

1. General Requirements

A. Model clearance requirements - Areas which must remain clear for code or service consideration including but not limited to insulation, monokote, equipment, access clearance around piping or other systems requiring a code specific clearance. All in-wall system equipment and devices to be modeled.

B. Model wall and ceiling access doors where required.

C. Model working area around J-boxes, panels, etc.

D. Model working area around A/V equipment.

E. Model swing area around panel doors.

F. Elevated access zones are to be modeled from the top of the eqp. to the floor below.

G. Pre-fabrication - anything that will be pre-fabricated should be included in the BIM. This will ensure proper spacing and connections.

H. Supports/ seismic braces will be required in the BIM.

I. Model all in wall or surface mounted devices and or equipment

2. Architectural Model

Contra Cost Community College District
Los Medanos College
L-636 Physical Education and Student Union Complex

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Building Information Modeling
ADDENDUM #4
A. Wall thickness and height - required for routing main utilities, locating VAV boxes, identifying priority wall framing, wall penetrations, fire stopping.

B. Walls, slabs, Doors, Interior Windows, and signage.

C. Hard ceilings and soffits - required for identifying structural integration and clearances, HVAC diffuser locations, electrical fixture locations, and routing of utilities.

D. Suspended acoustical ceilings - required for identifying structural integration and clearances, HVAC diffuser locations, electrical fixture locations, and routing of utilities.

E. Exterior walls and storefronts - required for identifying the location of rain water leaders.

F. Shaft/Chase walls - required for identifying the correct locations of plumbing vents and HVAC shafts.

G. Architectural features requiring utilities - required for mechanical routing.

H. Architectural features in mechanical spaces - required for mechanical routing.

3. Cold Steel Framing Model

A. Top and bottom track, kickers, and zclips to be used for coordination.

B. Framing/block-outs for MEP trades as needed.

C. Door framing and headers.

D. Head of wall conditions.

E. Any no-fly zones required for installation or representation of an object.

4. Structural Model

A. Beams and columns - required for coordinating above ceiling MEP/FP utilities.

B. Braces and gusset plates - required for coordinating above ceiling MEP/FP utilities.

C. Miscellaneous supports - required for coordinating above ceiling MEP/FP utilities.

D. External wall framing connections - required for coordinating with MEP/FP and Architectural trades.

E. Beams penetrations - required for coordinating above ceiling MEP/FP utilities.

F. Decking layout, Bent plates, and deck closures.
G. Base isolators with required clearances and access paths for removal

H. Lateral dampers along with required clearances.

5. HVAC Model

A. CAV’s/VAV’s/Phoenix Valves/FCU’s/Humidifiers/AHU’s or any other mechanical equipment and the associated access or code related clearance.

B. Valve train components and associated access or code related clearance.

C. Medium pressure duct and SMACNA required reinforcement and supports - required for coordination and routing of other trades.

D. Low-pressure duct and SMACNA required reinforcement and supports - required for coordination and routing of other trades.

E. Shaft locations and supports - required for coordination and routing of other trades and for locating smoke dampers, etc.

F. Fire smoke dampers - required in coordination, especially if walls are also provided in the model.

G. Flex ducts - required for showing how low-pressure ducts connect to the diffusers.

H. Diffuser locations and sizes - required for coordination of finish utilities with the other fixtures in a room (like electrical fixtures, etc.).

I. SMACNA required reinforcement and supports - Hangers and seismic bracing - required for coordination and routing of other trades and for inserting the deck correctly before installation begins.

J. HVAC piping to VAV and CAV boxes - required for coordination and routing of other trades.

K. All equipment and clearance plus access zones - required for coordination and routing of other trades (can be drawn as 3D blocks with accurate connection points).

L. CAV & VAV Boxes including all access zones required for maintenance.

M. Motors and access to motors/thermal resets, disconnect switches, and Damper access doors.
N. Insulation
O. Structural equipment pads
P. Access zones, no Fly zone (Radiant tubing areas).
Q. Wall and ceiling access doors (access zones shown above and below).

6. Mechanical Piping
A. All ½” piping required for building system function
B. All insulation required
C. All equipment and housekeeping pads
D. All Valves
E. High point vents, drains, low point valves, etc.
F. Hangers and seismic bracing - required for coordination and routing of other trades and for inserting the deck correctly before installation begins.
G. Seismic joints and movement clearances
H. Access and clearance zones required
I. Wall and ceiling access doors (access zones shown above and below).

7. Electrical Model—include under slab electrical and low voltage
A. All Conduit or bundles of wiring adding up to 1 1/2” in diameter and above are to be modeled. All homerun conduits from panel to homerun junction box will be modeled.
B. Feeder conduit - required for coordination with other trades.
C. Junction boxes associated with modeled devices or conduit homeruns required for coordination with other trades.
D. Lighting fixtures - required for coordination with other trades and finish utilities like ceiling grid, sprinkler heads, HVAC diffusers and specialty lighting.
E. Lighting supports and seismic required for architectural lighting that exceeds 20lbs. - required for routing and coordination of other trades.
F. Cable trays and supports - required for coordination with other trades.
G. Trapeze pathways for home runs - required for coordination.

H. Outlets and switch locations in rooms - Architectural model determines locations.

I. Hangers and seismic bracing associated with conduit home runs, large feeder runs, or trapeze pathways - required for coordination with other trades and for inserting the deck.

J. Equipment panels - required for coordinating with wall framing to determine backing, etc.

K. Electrical rooms - required for coordination with wall framing and other trades.

L. Fire alarm devices and equipment only - required for coordination with other trades.

M. Wall devices that could impact in-wall coordination.

N. Structural equipment pads

O. Access zones

P. Wall and ceiling access doors (access zones shown above and below).

8. **Plumbing Model**—including under slab plumbing.

A. All piping ½” and greater along with any valves are to be modeled.

B. Plumbing fixtures including trap primers - required for coordination with other trades.

C. Graded cast iron pipe lines - required for coordination with other trades.

D. Waste and vent lines - required for coordination with other trades and with architectural walls and shafts.

E. Cold and hot water piping including valves - required for coordination with other trades.

F. Gas piping and gas mains including valves, ZVB’s, headwalls, etc. - required for coordination with other trades.

G. Piping to associated equipment

H. Hangers and seismic bracing - required for coordination with other trades and for inserting before installation.

I. Boiler and other equipment - required for coordination (can be drawn as 3d blocks with accurate connection points).
J. Specialty piping -required for coordination with other trades

K. Structural equipment pads

L. Insulation

M. Access zones

N. Wall and ceiling access doors (access zones shown above and below).

9. Sprinkler Model

A. All piping ½” and associated valves or equipment greater are to be modeled.

B. Sprinkler mains and branches - required for coordination with other trades.

C. Sprinkler head drops –required for coordination with finish utilities like electrical lighting, diffusers, etc. Avoid using elements that are nonmanipulatable for connection to heads.

D. Sprinkler pipes - required for coordination with other trades.

E. Hangers -required for coordination with other trades.

F. Seismic bracing.

G. Clearance zones.

H. Access zones.

I. Wall and ceiling access doors (access zones shown above and below).

10. A/V Model

A. All Conduit or bundles of wiring adding up to 1” in diameter and above are to be modeled

B. Rough-in of ceiling support locations

C. Project light paths - useful to ensure proper viewing of projector image.

D. Cable tray -required if an extra tray is used for A/V.

11. Controls

A. Wall mounted panels, terminal cabinets, in-line devices and other equipment including all clearances and access zones
B. All conduit required for coordination

12. Site Utilities

A. All systems 3/4” and greater

B. All fittings, valves, reinforcements, manholes, pumps or other eqp.

C. All clearances and access zones

13. Equipment

A. All Equipment that may affect the design or dimensions of a room

B. All point of connections

C. Access zones

D. Seismic bracing

11.2.16. Coordination Prioritization

1. The Construction coordination process will not interfere with the construction schedule. This Construction Coordination timing is critical so the team can receive approvals required prior to the first construction deck activity.

A. HVAC and Plumbing contractors will need to procure pipe anchor embeds to meet early concrete work as indicated in the schedule.

B. HVAC and Plumbing contractors will need to obtain approval on the seismic joints early in order to model the final locations correctly that correlate with the anchor locations. M&P contractors will drive anchor wall heights depending on routing and seismic joint elevation limitations.

C. Early approvals of major AHU and FCU equipment to ensure model connection points of the approved product and included in model

D. It is critical to the coordination process that the trades that will require seismic engineering, engage their preferred engineer as early as award. It is suggested that the project team utilize the same engineer to avoid unnecessary conflicts and engage in a more efficient seismic layout.

11.2.17. BIM Team Scopes

1. During BIM Construction coordination, modeling scopes will be prioritized by the Contractor per the requirements of the contract documents and the Contractor’s Coordination Schedule.
2. Subcontractors shall develop 3D fabrication model for coordination with sufficient level of detail for accurate coordination.

3. Shop drawings shall be produced from the models used for construction coordination.

4. In general, all work in scope shall be modeled in the 3D environment.

11.2.18.Model Ownership

1. During construction, major ownership of the Construction Model is held by the Contractor, and contracts with all model authors (i.e.: subcontractors, consultants, etc.). The model authors are individually responsible for the content and outcome from the use of their model in the BIM.

2. At project completion, the ownership is transferred to the Contra Costa County Community College District.

11.2.19.Infrastructure

1. Common Platform

A. The primary collaboration platform is BIM 360 Glue. Access to BIM 360 Glue will be provided to each participating party by the Contractor, Subcontractors may consider Navisworks as alternatives for those additional users if appropriate. Access to software must not impact the performance of any team members.

2. BIM File Sharing

A. BIM 360 Glue will be used for collaboration and file sharing, with access rights provided by the Contractor. and file sharing for miscellaneous use by the subcontractors.

3. Hardware / Equipment

A. All participants will be expected to provide all necessary computers, software, and peripherals with sufficient capacity to ensure a reliable work flow.

11.2.20.Process

1. Model Flow Summary

A. Model flow is an iterative process involving the Model Authors, Model Managers, and the common model communication platform is BIM 360 Glue for this project.
B. The model flow begins with a Model Author and the design intent which it is derived from (plans, specifications, and RFI responses, etc.). The Model Authors predominantly communicate directly with the common platform, calling on any other model which they need to coordinate with, review, or back check. They also speak through the Model Managers for the following reasons:

11.2.20.1.B.1 Issues requiring contractor Input

11.2.20.1.B.2 Cumbersome coordination items / multi-trade

11.2.20.1.B.3 Model QA / QC by management

2. Design changes and RFI’s

A. As RFI’s and CO’s are distributed, it is each trades responsibility to review and implement the response into their model. A log that documents this implementation will be kept and maintained by each trade and provided to the Contractor upon request.

B. Distribution of this log will be required prior to any BIM coordination meeting.

11.2.21.Model Collaboration

1. Each of the sub-contractor disciplines has communications through the General Contractor.

2. Contractor will assist the project team in determining when their model / plans need to change due to coordination results. Contractor, will be able to manage these communications by receiving a copy of any email, file transfer, or other means to satisfy open communications and keeping managers “in the loop.”

3. BIM 360 Glue – Online Cloud-Based Collaboration tool.

4. It is strongly recommended to “Glue” on a regular basis (daily). Each participant does their own work and asked to share and correct their own model. It also recommended to visually inspecting each upload for quality that could impact other trades. BIM 360 Glue will automatically notify other parties and the Contractor’s BIM Manager.

5. Through BIM 360 Glue, Contractor’s BIM manager will be able to regularly (daily) monitor the coordination activities from each participant and how the activities were performed.

11.2.22.Process Flow
A. Detailing

11.2.22.1.A.1 Areas/zones for priority coordination are established by and scheduled by the Contractor. The schedule will direct the Team’s focus on a week-by-week basis.

11.2.22.1.A.2 The subcontractor references the applicable 2D and 3D data to conduct its modeling.

B. Coordination & Clash Detection Process

11.2.22.1.B.1 The subcontractor produces a fabrication model based on the information provided and uploads their own model to BIM 360 Glue for collaboration and clash detection.

11.2.22.1.B.2 Each subcontractor will be responsible for resolving clashes of their trade by collaborating and communicating outside of Clash detection meetings in order to reduce the amount of conflict prior to these meetings.

11.2.22.1.B.3 The first clash detection and resolution meeting is hosted by the Contractor who has reviewed the unresolved model clashes and saved each as a viewpoint prior to the meeting. Through the meeting, resolutions are assigned and recorded among the trades.

11.2.22.1.B.4 This process is repeated, requiring trades to review updated models and coordinate around any newly discovered clashes caused by their work, other subcontractors’ work, and/or vendors until a given area is fully coordinated.

2. Coordination Expectations

A. It is expected that the trade contractors will perform QC checks for their discipline for completeness and design intent.

B. Each subcontractor shall be responsible for updating backgrounds and models with all approved Change Orders affecting them, constructability review items, and any RFI responses throughout the project. They shall also raise to the attention of the Contractor any previous construction model issues not updated within the current construction model.

C. The BIM process is suited to improve coordination of the design and construction process, as well as deliver improved information for facility management. Required files and documents will be uploaded to the Contractor’s designated collaboration site. The Contractor and Subcontractors are required to coordinate models between specialties to verify clearance, analyze conflicts/clashes and deliver quality documentation to reduce RFI and Change order submissions.
D. The subcontractor is required to understand and coordinate with the work of all other trades in the development of the 3D model. The subcontractor shall check and provide quality control over the work of their detailers, preferably by a foreman, so that their 3D model accurately represent the design intent as it will be exactly installed in the field to operate properly in a fully-integrated system that meets all building codes and the requirements of other jurisdictions and local agencies over this project (Fire Marshall, ADA,). Any deviation during installation should be notified by the trade responsible and approved by the Contractor and the Architect of Record.

E. If the Contractor or subcontractor lacks the in-house modeling, hardware and/or software to accurately generate the 3D Model, it may outsource this modeling effort to a 3rd party. Any 3rd party information should be included in the BIM Execution Plan.

F. It is recommended that the geometry from the BIM should be exported to total station or equal for an accurate, coordinated construction layout. This will increase efficiency in the layout of systems, reduce overall margin of error and ultimately preserve design intent during construction.

G. Project Drawings and required for construction will be extracted from this model. The final “As-built” model is what will be integrated to the District’s facilities management programs.

H. Background creation for coordination must be produced by the trade that is in need of another trades background. This can be done by downloading said Revit model and exporting the necessary backgrounds or through model links.

12. Model Authors

1. Their internal modeling process for each trade is not described in the scope of this manual, but the collaboration process is as follows:

2. Contractor assigns action items to project team members during the subcontractor clash resolution meetings, and the viewpoints are sent to the relevant Model Author. PDF pen markups are also useful. A coordination meeting is held with the BIM Construction Team members in the days following, where the issues are viewed and resolved.

3. The Model Authors shall arrive at the meeting with an idea of how each of their clashes can be resolved. Each clash is discussed collaboratively and action items are assigned and recorded.

4. The Model Author (or subcontractor(s) if assigned) makes the changes to their model and back checks against any newly-discovered clashes caused by this work or other changes that may be concurrent.
5. The model file is posted (Glued) to BIM 360 Glue daily and clashed daily.

6. BIM 360 Glue will automatically update the facilitated model with the model and it is the responsibility of the model author to review their model against the facilitated model for new or resolved clashes.

7. Responsible for providing the required information of all access requests of the model for BIM 360 Glue.

13. Data Management

1. Purpose

13.1.1. The objective of the data management guidelines is to establish the framework for the successful capture and management of normalized facility data in order to ensure an efficient migration into systems used for facilities management (FM).

13.1.2. As-builts are accurate and available in a file format that can support change management.

13.1.3. Data is properly normalized (no redundancies) to ensure efficient transition at handover to facility management.

2. Key Software Applications

13.2.1. BIM Applications (Revit 2018, BIM 360 Glue, Navisworks)

13.2.2. Construction coordination software (Navisworks, BIM360 Glue)

13.2.3. Project Management software (EADOC see section 01318)

3. A project designated as a “BIM Project” typically includes deliverables produced both in BIM and non-BIM Applications. For example, the architectural model may be produced in Revit, while mechanical and electrical models are produced in CAD based software. It is critical to set up proper data management procedures before the project is started to enable appropriate data collection and exchange regardless of how many applications are being used by the project delivery team.

4. The Construction BIM Team (including trades) will perform continuous collecting, entering, validating, updating and exporting design, construction data from/into BIM and other data
soures. The BIM Construction Team should focus on how they will apply the following objectives of the data management process to ensure process efficiencies.

13.4.1. Capture data as it is created-eliminate redundant data collection efforts where possible;

13.4.2. Implement objective measure for quality control-provide transparent methods to review progress against deliverable requirements

5. The Process Data Management overview starts with the District providing a set of standard naming conventions for equipment, space designation/zone naming policies, and a minimum set of required attributes for equipment, systems and zones. The BIM Construction Team uses the provided standards from the beginning to avoid renaming BIM objects or searching for missing attributes later in the project. It is required that the BIM Construction Team uses BIM applications for data assignments (not CAD) for all disciplines due to the data oriented nature of BIM applications.

6. The Contractor sets up one or more milestones during construction to check data for accuracy. The required information to be checked at those milestones will be provided by the BIM Construction Team in advance. The District and Architect of Record reviews the provided models for data accuracy. If there are issues with the data, the model is returned to the BIM Construction Team for corrections.

7. When the Contractor reports that the BIM is ready for construction and the model matches the requirements, it is submitted to the Architect of Record. The Construction BIM Team uses the Construction Model to create shop drawings. The Construction BIM Team can use the design model for reference but does not have to rely on it, except for maintain the naming conventions and space assignments for objects. For example, if there is an object in the BIM with an Instance Name fields value equal to “FSD 25” and its Room Number field is equal to “2311” in the design model, then the construction model should also have an object with an instance Name equal to “FSD 25” and its Room Number equal to “2311”, unless the object is moved or deleted. Construction BIM Team will maintain proper naming conventions in their models.

8. Data Management and integration – Additional data related information

13.8.1. For the purposes of using the model for maintenance management, if there are several MEP spaces in the same room (i.e. above ceiling, below floor), those spaces will be classified as one room, unless there is a plenum.

13.8.2. Plenums are defined as a separate space.
13.8.3. Rooms identified in the model, should have Room objects assigned to it.

13.8.4. Room boundaries should be properly connected. All spaces must be bounded by walls and floors. 13.8.5. The MEP model should have spaces mapped to the architectural model and all lifecycle-targeted MEP equipment should be assigned to spaces.

13.8.6. Zones (Revit areas) should be defined and each zone consists of spaces.

13.8.7. Every space has a name and a room number, including the roof if there is rooftop equipment. 13.8.8. All mechanical systems are defined (every element belongs to a system)-I.e. chilled water, hot water, etc.

14. Deliverables

1. The 2D conversion takes place after, or during, the process described in this document. The result of the collaborative, 3D-based construction coordination process is one with input and buy-in from many project participants. Each of the deliverables listed below shall have undergone review by each trade foreman and/or project manager for the following


14.1.2. 2D CAD, PDF, and native Revit (.rvt) files are required

1. Revit files will include the information that will be extracted for future facilities management uses.

2. The final products include:

14.2.1. Coordinated P.O.S. (Penetrations, Openings, & Sleeve) drawings which contain locations of any penetrating system through the slab, deck, roof or concrete wall.

14.2.2. Coordinated shaft drawings which contain dimensions of all deck openings as well as locations of all systems and equipment located with a shaft including supports and insulation.

14.2.3. Coordinated insert and point load drawings

14.2.4. Coordinated priority wall drawings

14.2.5. Coordinated equipment pad and layout drawings

14.2.6. Coordinated composite reflected ceiling plan which accurately shows all ceiling mounted devices and equipment.

14.2.7. Coordinated shop drawings
14.2.8. Reviewed and approved by the Architect of Record.

14.2.9. Coordinated native 3D models for construction fabrication and field installation.

14.2.10. Models of the project and set of drawings in PDF format showing locations of all concealed conditions, and the actual dimensions of all architectural, structural, mechanical, electrical, plumbing, security and fire protections elements, components, and systems.

14.2.11 Delivery of a model that locates construction elements to a reasonable proximity. Changes made during construction of more than a few inches from the design should be reflected in the model.

14.2.12 Tolerances of model. Models are to be accurate to +/- 1” of Actual Size and Location for all concealed/hidden components

15. Model Maintenance

1. Each construction model author is responsible for maintaining their models through the construction coordination phase. For example: when RFI’s and Change Orders are issued impacting the location of walls and ceilings an updated construction model should be issued. RFI’s and changes impacting Finishes would not be issued as a model file. Any RFI’s and Change Orders affecting subcontractors require the model authors to update. All as built changes are also required to be updated.

2. Model maintenance also includes data filing for the Team. The guidelines for uploading files must be followed in order to prevent re-filing and to ensure archiving is preserved.

3. During the coordination periods, all participant of this process should make best efforts to keep their models up to date with all changes. These latest models will be distributed to the MEP/FP, Exterior Envelope, drywall subcontractors on a weekly basis unless more frequent updates are needed.

16. Construction and the Model

1. Through the Construction Coordination phase, the BIM Construction Team has determined the most effective scopes of the project to be modeled and the level of detail therein. All systems are fully coordinated as agreed to by the BIM Construction Team. When this detailed preplanning translates into the physical construction, any arising issues are resolved by using the model in the field. However, when discrepancies exist between the 2D and the model, 2D documents take precedence with consideration of the approved federated model. The physical construction, any arising issues are resolved by using the model in the field.
2. Once an area, floor, or the entire project has been modeled and coordinated, the BIM Leader will publish a Protected Navisworks file (.NWD) and distribute to the BIM Construction Team. Each BIM team member will also plot their drawings for “sign-off” by all trades. By the act of signature and submittal, each subcontractor acknowledges their coordinated portion of the work for installation with all other trades, not limited to mechanical, electrical, architectural, and structural, fire protection and framing contractors. The Navisworks (protected file) will take precedence over the 2D sign-off drawings when clashes occur and there is a dispute over the accuracy of signed drawings to the 3D Model. Contractor will use these documents to resolve field conflicts that may occur.

3. Contractor shall take responsibility for any and all coordination drawings created by subcontractors for backgrounds, elevations, dimensions, routing paths, sizes, and service access areas. BIM to field tolerance’s

16.4.1. All elements are to be installed per the coordinated BIM. This is typically achieved through the use of point layout, prefabrication, layout drawings, and inserts. It is expected that there may still be deviation from these methods. This will be a maximum tolerance of +/- 2”.

16.4.2. For all items that are not able to be installed through the use of these methods, there are specific tolerances required. With reference to a model, those items are categorized below:

1. If an item cannot be installed per the above expectation, they are subject to the following tolerances: A. LOD 500 will be a maximum tolerance of +/- 6” B. LOD 450 will be a maximum tolerance of +/- 12” C. LOD 400 and below will have a maximum tolerance of +/- 24”

2. Concealed items within a wall or chase will have a maximum tolerance of +/- 6”. Those systems are:

A. Gas
B. Plumbing
C. Hydronic

3. The Point of Connection to and LOD 500 equipment, would adopt the LOD 500 requirement. This adopted LOD ends at the Point of Connection and does not apply to the entire system. A. Receptacles are not considered a Point of Connection.

16.4.3. The model will be used as a tool to assist in the resolution of any conflict created in the field. All items not modeled are to be coordinated around the model.

17. Conforming vs. Non-Conforming Work:
1. Any work performed or installed that differs from the Construction BIM and/or Construction Documents shall be considered Non-Conforming Work.

2. Any work performed or installed that is not modeled and/or coordinated as previously agreed with the contractor will be considered Non-Conforming Work.

3. No work including work based on Change Orders will be performed without the completed 3D model and signed coordination shop drawings, any such work will be considered Non-Conforming Work.

4. Non-Conforming Work includes any and all seismic and anchorage points not shown on signed coordination drawings.

5. Conforming Work is work that has been modeled and clearly shown on signed shop drawings with proper elevations, dimensions, routing paths, service access areas and has been fully coordinated and signed off by all trades for acceptance.

6. Non-Conforming Work that conflicts with Conforming Work will, therefore, have to be moved by the installing Non-Conforming Work Contractor at no additional cost to the Owner this includes any schedule impacts.

7. In the event that Conforming Work may have to be moved or modified to correct the conflict, the installing contractor with the Non-Conforming Work shall be liable for the cost incurred by those BIM Construction Team members in order to accommodate installation of all Non-Conforming Work.

8. Non-Conforming Work will not have precedent over Conforming Work.

9. In the event that “Conforming Work” conflicts with “Conforming Work”, meaning conflicts missed during the coordination process, trades that are in conflict will have to re-coordinate the conflict either in the field or by 3D modeling and Navisworks. At no time will this re-coordination, re-work installation, or schedule impacts become a cost to the Owner.

10. Any work shall be considered ‘Non-conforming’ if the trade has not modeled per specific plan details as required even though what is modeled may be clash free as this will show up as potential conflicts or access issues during construction.
PART 1 - GENERAL

1.01 SECTION INCLUDES
   A. Electric vehicle charging station

1.02 RELATED REQUIREMENTS
   A. Section 01 33 00 - Submittal Procedures
   B. Section 01 77 00 - Closeout Procedures
   C. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

1.03 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General Conditions, Division 01 - GENERAL REQUIREMENTS, and other applicable specification sections in the Project Manual apply to the work specified in this Section.

1.04 SUMMARY
   A. Scope: Provide design and engineering, labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, erection, and installation for electric vehicle (EV) charging stations as required for the complete performance of the work, and as shown on the Drawings and as herein specified.

   B. Section Includes: The work specified in this Section includes, but shall not be limited to, complete, electric vehicle charging stations as indicated on the Drawings and as specified herein.

   1. The extent of the electric vehicle charging infrastructure work shall be as indicated by the Drawings and by the requirements of this Section, including, but not limited to, the following:
      a. Panelboards or load centers.
      b. Integral branch circuit metering options for certain utilities that want to offer discounted electric vehicle charging rates.
      c. Power monitoring meters where the Owner wants to monitor the kW consumed by the charging station.
      d. Interface for demand response signals options (for future versions of electric vehicle charging station products).
      e. Work stations, software, and communications hardware when installing power monitoring devices.

   2. System installation shall include, but shall not be limited to, the following:
      a. Wiring of branch circuit conductors.
      b. Installation of external metering devices and wiring to the charging station where electric vehicle rates are offered by utilities.
      c. Installation of communications conductors and associated hardware when installing external power monitoring devices.
1.05 REFERENCED STANDARDS

A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.

B. American Society of Civil Engineers (ASCE):

C. ASTM (ASTM):

D. California Code of Regulations (CCR):
   1. CCR Title 24, "California Building Standards Code."

E. International Code Council (ICC):
   1. ICC-ES AC156, "Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems."
   2. ICC IBC, "International Building Code."

F. National Fire Protection Association (NFPA):
   1. NFPA 70, "National Electrical Code" (copyrighted by NFPA, ANSI approved) - hereinafter referred to as NEC.

G. SAE International (SAE):

H. Underwriters Laboratories, Inc. (UL):
   5. UL 2251, "Standard for Plugs, Receptacles and Couplers for Electric Vehicles."

1.06 SUBMITTALS

A. General: See Section 01 33 00 - SUBMITTAL PROCEDURES.

B. Product Data: Submit product data showing material proposed. Submit sufficient information to determine compliance with the Drawings and Specifications, including, but not limited to, manufacturer's product data and installation instructions for each component and system.

C. Shop Drawings: Submit shop drawings for each product and accessory required. Include information not fully detailed in manufacturer’s standard product data, including, but not limited to, list of components and equipment to be supplied, including, but not limited to, proposed locations, clearances, and power requirements.
   1. Panel Drawings: Submit manufacturer’s dimensional drawings.
2. One-Line Diagrams: Submit one-line diagrams of the system configuration proposed if it differs from that illustrated in the riser diagram included in these Construction Documents. Submit one-line drawings indicating location and addresses of all hardware, including, but not limited to, panelboard or load center, circuit breaker, and charging stations.

D. Wiring Diagrams: Submit wiring diagrams detailing power, signal, and control systems, clearly differentiating between manufacturer-installed wiring and field-installed wiring, and between components provided by the manufacturer and those provided by others.
1. Submit typical connection diagrams for all components including, but not limited to, panelboards, communications devices, and personal computers.

E. Qualification Data: Submit qualification data for firms and persons specified in Quality Assurance Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names of architects and owners, and other information specified.

F. Contract Closeout Submittals:
1. Operation and Maintenance Data: Submit operation and maintenance data for electric vehicle charging stations to include in operation and maintenance manuals specified in Division 01 - GENERAL REQUIREMENTS.
2. Warranty Data: Submit manufacturer's standard warranty documents.

1.07 QUALITY ASSURANCE

A. Qualifications:
1. Manufacturer Qualifications: Manufacturer shall be a firm engaged in the manufacture of electric vehicle charging stations of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of 20 years.
   a. The manufacturer shall be ISO 9001 certified and shall be designed to internationally accepted standards.
   b. Factory fax/telephone/email system support shall be available free of charge from the manufacturer during normal business hours.
2. Installer Qualifications: Installer shall be a firm that shall have a minimum of five years of successful installation experience with projects utilizing electric vehicle charging stations similar in type and scope to that required for this Project and shall be approved by the manufacturer.
3. Inspecting and Testing Agency Qualifications: To qualify for acceptance, an independent inspecting and testing agency hired by the Contractor or manufacturer to test products shall demonstrate to the Architect/Engineer's satisfaction that they are qualified according to ASTM E 329 to conduct testing indicated.

B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.

C. Standards: Comply with applicable requirements of the following standards:
1. **NEMA Compliance**: Applicable portions of NEMA standards pertaining to types of electrical equipment and enclosures.

2. **NEC Compliance**: Applicable portions of the NEC, including, but not limited to, Article 625.

3. **UL Compliance**: Applicable UL standards for electric vehicle supply equipment, panelboards, circuit breakers, and energy management equipment.


5. **CCR Title 24**: Lighting control equipment shall be certified by the California Energy Commission.

6. **Seismic Compliance**: NFPA 5000, ASCE 7, ICC-ES AC156, and/or ICC IBC, as applicable to the Project location and as required by authorities having jurisdiction.

D. **Electrical Components, Devices, and Accessories**: Electrical components, devices, and accessories shall be listed and labeled as defined in NEC, Article 100, by an inspecting and testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. **Coordination**: Coordinate the work in this Section with all of the trades covered in other sections of the Specification to provide a complete and operable system. Furnish inserts and anchors that must be built into other work. Work closely with installers of finish materials so that units are properly aligned with adjacent materials.

### 1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project site in supplier’s or manufacturer’s original wrappings and containers, labeled with supplier’s or manufacturer’s name, material or product brand name, and lot number, if any.

B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

### 1.09 PROJECT CONDITIONS

A. **Environmental Requirements**: Do not install electric vehicle charging stations until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

### 1.10 WARRANTY

A. **General**: See Section 01 7700 - CLOSEOUT PROCEDURES

B. **Special Warranty**: The Contractor shall warrant the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for period indicated below. This special warranty shall extend the one year period of limitations contained in the General Conditions. The special warranty shall be countersigned by the Installer and the manufacturer.

   1. **Warranty Period**: Warranty period shall be 18 months from date of Substantial Completion.

C. **Additional Owner Rights**: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other
warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Design Reference Standard: Product specified is CT4000 Level 2 "Electric Vehicle (EV) Charging Station" as manufactured by Chargepoint. Items specified are to establish a standard of quality for design, function, materials, and appearance. Equivalent products by other manufacturers are acceptable. The Architect/Engineer will be the sole judge of the basis of what is equivalent.
   1. Equals: If a system from another manufacturer is submitted for review and acceptance, the following submittals shall be required:
      a. Short circuit study demonstrating NEC 110-10 compliance for remotely operated switching devices.
      b. Elevation drawing showing placement of equipment in equipment rooms.

2.02 ELECTRIC VEHICLE SUPPLY EQUIPMENT OUTDOOR (EVSE)

A. Power Specifications (Each charging unit UON per single line diagram):
   1. Input Power: 208 volts AC to 240 volts AC/30 amperes, single-phase, 60 hertz.
   2. Input Power Connection: Line 1, line 2, and ground.
   3. Feeder Circuit Breaker: Two-pole, 40 amperes, non-GFCI type.

B. Physical Specifications:
   1. Enclosure Type: Type 3R.
   2. Enclosure Dimensions: See the Drawings.
   3. Enclosure Mounting: 6'-0" bollard pedestal mounted.
   4. Cable Type: SAE J1772.
   5. Cable Length: 18 feet (5486 mm).
   6. Cable Management: Non-retractable, integral with the enclosure.
   7. Unit Options: 6'-0" bollard single/dual units (pedestal-mounted).

C. User Interface:
   1. Power available status indicator.
   2. Charging blinking blue indicator.
   3. System detected fault red status indicator.

D. Authentication:
   1. Type non-networked RFID/key fob.
   2. Programming radio frequency remote control.

E. Protection:
   1. Ground fault protection integral, CCID 5 mA, auto reset.
   2. Ground fault protection system test automatic at the beginning of each charge cycle.

F. Environmental:
   1. Operating Temperature: -22 °F (-30 °C) to 131 °F (55 °C).
   2. Electrostatic Discharge: 15 kV open air, 8 kV contact.
   3. Surge: 6 kV.
   4. Radiated Immunity: 20 V/m.
   6. Electrical Fast Transient/Burst (EFTB): 2 kV.
7. Emissions FCC Class: Class B.

G. Standards Compliance:
   1. NEC, Article 625.
   2. SAE J1772.
   3. UL 991, UL 1998, UL 2231-1, UL 2231-2, UL 2251, and UL 2594.

H. Ethernet network shall be as follows:
   1. The Contractor shall coordinate work with the network administrator to
      assure that proper connection points are available. The Contractor
      shall also secure static IP address for each individual power monitoring
      web server.
   2. Network shall support Ethernet communications.

2.03 SOURCE QUALITY CONTROL

A. Component Testing: Electronic component board assemblies shall be
   factory-tested and burned in prior to installation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Examine areas and conditions under which the
   work is to be installed, and notify the Contractor in writing, with a copy to
   the Owner and the Architect/Engineer, of any conditions detrimental to the
   proper and timely completion of the work. Do not proceed with the work
   until unsatisfactory conditions have been corrected.
   1. Beginning of the work shall indicate acceptance of the areas and
      conditions as satisfactory by the Installer.

3.02 INSTALLATION

A. Preparation and installation shall be in accordance with reviewed product
   data, final shop drawings, manufacturer’s written instructions and
   recommendations, and as indicated on the Drawings. System installation
   shall be coordinated with related and adjacent work. Define each circuit
   breaker.

3.03 DEMONSTRATION

A. If required by the manufacturer for advanced installations, provide the
   services of a factory-authorized service representative of the manufacturer
   to provide start-up service and to demonstrate and train the Owner’s
   personnel.
   1. Test and adjust controls and safeties. Replace damaged or
      malfunctioning controls and equipment.
   2. Train the Owner’s maintenance personnel on procedures and schedules
      related to start-up and shutdown, troubleshooting, servicing, and
      preventive maintenance.
   3. Review data in operation and maintenance manuals with the Owner’s
      personnel.
   4. Schedule training with the Owner, through the Architect, with at least
      seven day’s advanced notice.
3.04 PROTECTION

A. Provide final protection and maintain conditions in a manner acceptable to the Installer, that shall ensure that the electric vehicle charging stations shall be without damage at time of Substantial Completion.

END OF SECTION 26 27 29
CLEAR ANODIZED PARAPET WALL COPING, ALUM. SYSTEM, SEE RCP
5/8" TYPE 'X' GYP.BD. FINISH
4" SOFFIT FRAMING, SEE BEAM, SEE STRUC. DWGS

SU-103

1"
2 1/2"
OPP.

A8.11

3

17

SU - LEVEL 01 F.F.

0" 9

ABOVE U.H.P.
APPLY 1" RIGID SYSTEM, INTERIOR WALL, PER S.D.
CONNECTION, WALL TOP SEE ROOF PLAN
R19 BATT INSULATION AT EXT. OF @ 16" O.C. W/ 1/2" EXT.
6" MTL. STUD WALL FRAMING
MEMBRANE

SU - EW ROOF SECTION @ GL BK
CIRCULATION
SU-103

A8.11

ACTIVE SPACE

SU-104

FRAMING, S.S.D.
MTL. STUD ROOF BRACE FRAME - SSD
CEILING SYSTEM, MTL. DECK, S.S.D.

3

EAST WING T.O. PARAPET 25' - 0"
SU - LEVEL 01 F.F.
EAST WING T.O. PARAPET
CLEAR ANODIZED PARAPET WALL COPING, ALUM.
ALUM. HOR. SUBGRID RAIL & VERT.
DTL. 01, 03, 12 & 16/A8.11
BRACKETS SYSTEM. SEE TYP.
DECK, SEE ALSO S.S.D.
DIFFERENCES.

METAL STUD BLOCKING AT MTL.
8" MTL. STUD WALL FRAMING

1/2" = 1'-0"

25' - 0"

3

OUTDOOR AREA

SU-106

1/2"

MECHANICALLY FASTENED 1" RIGID INSULATION
ALUM. HOR. SUBGRID RAIL &
OPENING, SEE WALL SECTION.
OR EQ.. INTERRUPT PARAPET EXTERIOR SHEATHING & R19 BATT INSUL.
WALL.

SU-109

OPERABLE PARTITION, STC 52,
CEILING SYSTEM, WHERE INDICATED ON FLOOR PLAN.

A8.16

A8.17

WOMEN'S
SU-117

SU-104

ENCLOSED

SU-103

SYSTEM, SEE ROOF PLAN
UP & OVER PARAPET WRAP ROOFING MEMBRANE
A8.11

+10'-0"

26' - 10"

15' - 0"

20' - 0"

1" E.J.

11"

BH

SU - EW WALL SECTION @ GL BN.3 & B2
3

MEETING ROOM C

SU - LEVEL 01 F.F.

SU - LEVEL 02 F.F.

GRID 'BL' - T.O.S.

1" RIGID INSULATION OVER MTL.

ALUM. HOR. SUBGRID RAIL & VERT.
BRACKETS SYSTEM. SEE TYP.
DECK, SEE ALSO S.S.D.
S.S.D. W/ R-19 THERMAL BATT INSULATION.

ADDITIONAL INFO.

SU - LEVEL 01 F.F.

09

3

SU - LEVEL 01 F.F.

SU - EW WALL SECTION @ GL BN.3 & B2

SU - LEVEL 01 F.F.

SU - LEVEL 01 F.F.

SU - LEVEL 01 F.F.

SU - LEVEL 01 F.F.

SU - LEVEL 01 F.F.

SU - LEVEL 01 F.F.

SU - LEVEL 01 F.F.
<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>LW7-11</td>
<td>11' Wall Mounted Light</td>
<td>Same as LW7, expect in 11' in length. 110 VA 277 V Integral 0-10V driver 10% LED 11000 3500°K 8 0+ Interior ALIGHT #G3-N11-LH-30-HE-M?-??-D Unknown TBD SU corridor</td>
<td></td>
</tr>
<tr>
<td>LR7-16</td>
<td>16' Recessed Linear</td>
<td>Same as LR7 above, except 16' in length and 1000 lumen per a foot, 2 circuits 152 VA 277 V Integral 0-10V driver 1% LED 16000 3500°K 80 + Interior AXIS #BBRLED-B3-MF-1000-80-35-FL-16-C-UNV-D Focal Point</td>
<td></td>
</tr>
<tr>
<td>LR3-25</td>
<td>25' Recessed Linear WW</td>
<td>Same as LR3 above, except 25' in length, mounting Mudless flange gyp 225 VA 277 V Integral 0-10V driver 1% LED 17550 3500°K 80 + Interior SELUX #L36R1-1A35-35-A2-SF2-25-??-UNV-DML Focal Point</td>
<td></td>
</tr>
<tr>
<td>LP6-15</td>
<td>15' Pendant Mounted Linear</td>
<td>Same as LP6, except 15' in length and 750 lumens per a foot, provide 2 circuits, 1 for emergency (refer to plan for location) and 1 for normal power</td>
<td></td>
</tr>
<tr>
<td>LP3-22</td>
<td>22' Pendant Mounted Linear</td>
<td>Same as LP3 above, except 22' in length 196 VA Integral 0-10V driver 1% LED 22880 3500°K 80+ Interior AXIS #BBDILED-B3-MF-640/400-80-35-SO-22-??-UNV-D P-1-CTS+SM-D Focal Point</td>
<td></td>
</tr>
<tr>
<td>LN3-S</td>
<td>Pedestrian Pole (Single)</td>
<td>&quot;Galeon&quot; single head parking pole, 10' AFF include 5&quot; diameter steel pole, 3 light squares, 180 degrees configuration, chevron direction to be determined</td>
<td></td>
</tr>
<tr>
<td>LN1-5</td>
<td>14' Pedestrian Pole - Quadro H T5</td>
<td>Same as LN1 above, except with Type 5 (symmetrical) optics 58 VA 277 V Integral Step driver LED 4840 3000°K 80+ Exterior B1-U0-G0 SELUX #QH2L-R5-1-4TL500-30-??-277-HL-MOD+ pole No Known TBD Campus Standard Pedestrian pole</td>
<td></td>
</tr>
<tr>
<td>LC1-3</td>
<td>3' Concealed Slot Light</td>
<td>Same as LC1, except 3' in length. 4 VA 277 V Integral 0-10V driver 10% LED 2904 3500°K 80+ Interior BIRCHWOOD #ASH-LED-HLO-35-10-3-277-D10-PDC Elliptipar S305 White Restrooms</td>
<td></td>
</tr>
<tr>
<td>LW7</td>
<td>6' Wall Mounted Linear</td>
<td>&quot;G3&quot; series, 6' in length direct linear mullion mount, 850 lumen a foot, spotless lens, universal voltage, 0-10v dimming</td>
<td></td>
</tr>
<tr>
<td>LW3</td>
<td>Wall Recessed Step Light</td>
<td>&quot;22 384&quot; series, recessed 12&quot; in length step light, mounted 18&quot; AFF, finish TBD 12 VA Remote 0-10V dimming</td>
<td></td>
</tr>
<tr>
<td>LR4</td>
<td>4&quot; Square Recessed Downlight</td>
<td>&quot;Evo&quot; series, 1500 lumens, clear aperture, flangeless, matte-diffuse finish, mvolt, architectural details for installation, 135 lumens per a foot, 3 watts per a foot, wire out back of extrusion to 10%, 1 circuit</td>
<td></td>
</tr>
<tr>
<td>LC3</td>
<td>Illuminated hardrail LCPB</td>
<td>&quot;Luxrail&quot; series, illuminated handrail 2'-0&quot; in length, finish TBD, Size TBD, Post mounted in concrete, infill TBD, dust cover</td>
<td></td>
</tr>
<tr>
<td>LC4</td>
<td>14' Circular Cove light</td>
<td>&quot;Corona Z&quot; series, flexible lightstrip, 40 lumens per a lamp, lamp spacing 2.4&quot; on center, ivory lightstrip color, 14' in architectural details for installation, 135 lumens per a foot, 3 watts per a foot, wire out back of extrusion to 10%, 1 circuit, drywall flangeless mounting</td>
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<td>LP2</td>
<td>26 - Pendant_24&quot;D - Non Hosted</td>
<td>&quot;Skydome&quot; 24&quot; diameter, pendant mounted, height TBD, finish TBD, flush lens 77 VA 277 V Integral 0-10v dimming driver to 10%, 1 circuit, structural cable length 60&quot;, dust cover</td>
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<tr>
<td>LP3</td>
<td>8' Pendant Mounted Linear</td>
<td>&quot;Beam 4&quot; series, indirect/direct optics, 8' in length, spotless lens, 0 MR16, finish TBD, UNV voltage, 640 ;umens up architectural details for installation, 135 lumens per a foot, 3 watts per a foot, wire out back of extrusion to 10%, 1 circuit, drywall flangeless mounting</td>
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<td>ABBREVIATIONS</td>
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<td>WP=WEATHERPROOF HOUSING, D=DOME, PO=PATIENT AND HOUSING (PTZ=PAN,TILT,ZOOM, TP=VANDAL PROOF, OBSERVATION)</td>
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<td>H RACO #952 OR EQUAL-THREE-GANG BOX, 1-5/8&quot; DEEP WITH STANDARD OUTLET CONFIGURATION</td>
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<tr>
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<td>RACO #699 OR EQUAL-FIVE-GANG BACKBOX, 3-3/4&quot; HIGH, 9-7/32&quot; WIDE AND 3-1/2&quot; DEEP. FLOOR CAN BE FINISHED AREAS OR EXPOSED IN UNFINISHED AREAS</td>
<td>RACO #699 OR EQUAL-FIVE-GANG BACKBOX, 3-3/4&quot; HIGH, 9-7/32&quot; WIDE AND 3-1/2&quot; DEEP. FLOOR CAN BE FINISHED AREAS OR EXPOSED IN UNFINISHED AREAS</td>
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<td>RACO #840 OR EQUAL 3/4&quot; DEEP TWO DEVICE COVER.</td>
<td>RACO #840 OR EQUAL 3/4&quot; DEEP TWO DEVICE COVER.</td>
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<td>A/V OUTLET-CONFIG#1 (1 HDMI, 1 VGA, 1 3.5mm MINI ) E 84&quot; AFF</td>
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<td>A/V OUTLET-CONFIG#2 ( 1 HDMI, 1 VGA, 1 3.5mm MINI ) E PER ARCH</td>
<td>A/V OUTLET-CONFIG#2 ( 1 HDMI, 1 VGA, 1 3.5mm MINI ) E PER ARCH</td>
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