

Project No.: 908074



Specifications  
for  
**Kolligian Library 3W Renovation**  
**Volume 1 of 2**

University of California Merced  
Merced, California  
July 11, 2018

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**ADVERTISEMENT FOR BIDS**

**Kolligian Library 3W Renovation  
PROJECT NO.: 908074  
UNIVERSITY OF CALIFORNIA, MERCED**

**DESCRIPTION OF PROJECT:**

The project will provide space renovations to offices and support spaces located in the existing Kolligian Library Building 3<sup>rd</sup> Floor West on the UC Merced campus. This project will reconfigure selected portions of approximately **15,500** assignable square feet of spaces while the remaining building and spaces are expected to be fully operational. The Work will include coordination with University furniture vendor, demolition of existing framed walls, frame new walls, doors & hardware, electrical & data modifications, HVAC and fire sprinkler adjustments, and finishes. The project is projected to be complete is September 2018 for fall semester.

Project Completion: October 12, 2018

Estimated construction cost: \$375,000

Bidding documents will be available at the University's ShareFile site at <http://rfp-rfq.ucmerced.edu/> for electronic download: hardcopy bidding documents will not be provided by the University. Bid Results will be available on our website at <http://rfp-rfq.ucmerced.edu/>.

Bidding Documents will be made available July 12, 2018.

A **NON-MANDATORY** Pre-Bid Conference will be conducted on **Tuesday, July 17, 2018 beginning promptly at 10:00 AM**. Participants shall meet at 5200 N. Lake Rd, Merced, CA 95343, UC Merced Campus, Kolligian Library (KL) First Floor Lantern. Parking permits are required throughout campus and are available at yellow dispenser at the LeGrand and North Bowl.

If you need accommodations related to disabilities, please call Fran Telechea @ 209-201-8174 at least 3 working days prior to Pre-Bid Conference/Project Site Visit or Bid Opening.

Requests for clarification or interpretation of the Bidding Documents must be in writing and received by **Thursday, July 19, 2018 at 4:00 P.M.** Questions received after the above-noted deadline may be answered at the discretion of the University's Representative. Questions may be emailed to:

Fran Telechea – University of California, Merced  
Email: [ftelechea@ucmerced.edu](mailto:ftelechea@ucmerced.edu)

Revisions, additions or deletions will be made by written addenda issued by UC Merced Construction Services & Management.

Bids will be received only at:

**Hand & Overnight delivery only:**

**Attn: Fran Telechea  
Construction Services & Management  
University of California, Merced  
655 W. 18<sup>th</sup> Street,  
Merced, CA 95340**

**Bid must be received before:**

**2:00 PM  
Thursday, July 26, 2018**

**Bid Opening at:**

**University of California, Merced  
655 W. 18<sup>th</sup> Street,  
Merced, CA 95340**

Bid Security in the amount of 10% of the Anticipated Contract Amount shall accompany each Bid. The surety issuing the Bid Bond shall be, on the Bid Deadline, an admitted surety insurer (as defined in California Code of Civil Procedure Section 995.120)."

The successful Bidder and its subcontractors will be required to follow the nondiscrimination requirements set forth in the Bidding Documents and to pay prevailing wage rates at the location of the work.

The successful Bidder will be required to have the following California current and active contractor's license at the time of submission of the Bid: A or B

Every effort will be made to ensure that all persons have equal access to contracts and other business opportunities with the University within the limits imposed by law or University policy. Each Bidder may be required to show evidence of its equal employment opportunity policy. The successful Bidder and its subcontractors will be required to follow the nondiscrimination requirements set forth in the Bidding Documents and to pay prevailing wage at the location of the work.

The work described in the contract is a public work subject to section 1771 of the California Labor Code.

No contractor or subcontractor, regardless of tier, may be listed on a Bid for, or engage in the performance of, any portion of this project, unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 and 1771.1.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

The successful Bidder shall pay all persons providing construction services and/or any labor on site, including any University location, no less than the UC Fair Wage (defined as \$13 per hour as of 10/1/15, \$14 per hour as of 10/1/16, and \$15 per hour as of 10/1/17) and shall comply with all applicable federal, state and local working condition requirements.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA  
University of California, Merced  
July 12, 2018

THE UNIVERSITY OF CALIFORNIA IS AN AFFIRMATIVE ACTION/EQUAL  
OPPORTUNITY EMPLOYER.



**PROJECT DIRECTORY**

Project Name:	KOLLIGIAN LIBRARY 3W RENOVATION
Project No:	908074
Location:	University of California Merced Merced Campus- Kolligian Library (KL) 3rd Floor
University:	The Regents of the University of California
University's Facility person acting on behalf of University:	Mike McLeod Vice Chancellor/Chief Operating Officer (209) 228-7659
University's Representative is:	Fran Telechea Construction Services & Management (209) 201-8174
All inquiries shall be in writing and shall be directed only to:	Fran Telechea ftelechea@ucmerced.edu
Design Professional Consultants:	Stephanie Reed Paul Halajian Architects 389 Clovis Ave., Suite 100 Clovis, CA 93612 559-297-7900
Address for Stop Notices:	Marianna Eastman University of California, Merced 5200 North Lake Road Merced CA 95343
Address for Demand for Arbitration:	Western Case Management Center 6795 N. Palm Avenue, 2 <sup>nd</sup> Floor Fresno CA 93704
A copy of the Demand for Arbitration must be sent to:	University of California Office of the General Counsel 1111 Franklin Street, 8 <sup>th</sup> Floor Oakland, CA 94607-5200

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**ARTICLE 1**  
**DEFINITIONS**

- 1.1 Except as otherwise specifically provided, definitions set forth in the General Conditions or in other Contract Documents are applicable to all Bidding Documents.
- 1.2 The term “Addenda” means written or graphic instruments issued by University prior to the Bid Deadline which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections.
- 1.3 The term “Alternate” means a proposed change in the Work, as described in the Bidding Documents which, if accepted, may result in a change to either the Contract Sum or the Contract Time, or both.
- 1.4 The term “Bid Deadline” means the date and time on or before which Bids must be received, as designated in the Advertisement for Bids and which may be revised by Addenda.
- 1.5 The term “Bidder” means a person or firm that submits a Bid.
- 1.6 The term “Bidding Documents” means the construction documents prepared and issued for bidding purposes including all Addenda thereto.
- 1.7 The term “Estimated Quantity” means the estimated quantity of an item of Unit Price Work.
- 1.8 As used in these Instructions to Bidders, the term “Facility” means the University’s Facility office issuing the Bidding Documents.
- 1.9 The term “Lump Sum Base Bid” means the sum stated in the Bid for which Bidder offers to perform the Work described in the Bidding Documents, but not including Unit Price items or Alternates.
- 1.10 The term “Planholder” means a person or entity known by the Facility to have received a complete set of Bidding Documents and who has provided a street address for receipt of any written pre-bid communications.
- 1.11 The term “Unit Price” means an amount stated in the Bid for which Bidder offers to perform an item of Unit Price Work for a fixed price per unit of measurement.
- 1.12 As used in these Instructions to Bidders, the term “Business Day” means any day other than a Saturday, a Sunday, and the holidays specified herein, and to the extent provided herein, if the Facility or applicable office of the University is closed for the whole of any day, insofar as the business of that office is concerned, that day shall be considered as a holiday for the purposes of computing time in these Instructions to Bidders. Holidays include January 1<sup>st</sup>, the third Monday in January, the third Monday in February, the last Monday in May, July 4<sup>th</sup>, the first Monday in September, November 11th, Thanksgiving Day, December 25<sup>th</sup>, and every day designated by the University as a holiday.

## **ARTICLE 2**

### **BIDDER'S REPRESENTATIONS**

2.1 Bidder, by making a Bid, represents that:

2.1.1 Bidder has read, understood, and made the Bid in accordance with the provisions of the Bidding Documents.

2.1.2 Bidder has visited the Project site and is familiar with the conditions under which the Work is to be performed and the local conditions as related to the requirements of the Contract Documents.

2.1.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.

2.1.4 At the time of submission of the Bid, Bidder and all Subcontractors, regardless of tier, have the appropriate current and active licenses issued by the State of California Contractors State License Board for the Work to be performed and any licenses specifically required by the Bidding Documents. If Bidder is a joint venture, at the time of submission of the Bid, Bidder shall have the licenses required by the preceding sentence in the name of the joint venture itself. The State of California Business and Professions Code, Division 3, Chapter 9, known as the "Contractor's License Law," establishes licensing requirements for contractors.

2.1.5 Bidder has read and shall abide by the nondiscrimination requirements contained in the Bidding Documents.

2.1.6 Bidder has the expertise and financial capacity to perform and complete all obligations under the Bidding Documents.

2.1.7 The person executing the Bid Form is duly authorized and empowered to execute the Bid Form on behalf of Bidder.

2.1.8 Bidder is aware of and, if awarded the Contract, will comply with Applicable Code Requirements in its performance of the Work.

## **ARTICLE 3**

### **BIDDING DOCUMENTS**

#### **3.1 COPIES**

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement for Bids for the sum stated therein, if any. Documents are only available in full sets and shall not be returned.

3.1.2 Bidders shall use a complete set of Bidding Documents in preparing Bids.

3.1.3 University makes copies of the Bidding Documents available, on the above terms, for the sole purpose of obtaining Bids for the Work and does not confer a license or grant permission for any other use of the Bidding Documents.

### **3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS**

3.2.1 Bidder shall, before submitting its Bid, carefully study and compare the components of the Bidding Documents and compare them with any other work being bid concurrently or presently under construction which relates to the Work for which the Bid is submitted; shall examine the Project site, the conditions under which the Work is to be performed, and the local conditions; and shall at once report to University's Representative errors, inconsistencies, or ambiguities discovered. If Bidder is awarded the Contract, Bidder waives any claim arising from any errors, inconsistencies or ambiguities, that Bidder, its subcontractors or suppliers, or any person or entity under Bidder on the Contract became aware of, or reasonably should have become aware of, prior to Bidder's submission of its Bid.

3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be addressed only to the person or firm designated in the Supplementary Instructions to Bidders.

3.2.3 Clarifications, interpretations, corrections, and changes to the Bidding Documents will be made by Addenda issued as provided in Article 3.5. Clarifications, interpretations, corrections, and changes to the Bidding Documents made in any other manner shall not be binding and Bidders shall not rely upon them.

### **3.3 PRODUCT SUBSTITUTIONS**

3.3.1 No substitutions will be considered prior to award of Contract. Substitutions will only be considered after award of the Contract and as provided for in the Contract Documents.

### **3.4 SUBCONTRACTORS**

3.4.1 Each Bidder shall list in the Bid Form all first-tier Subcontractors that will perform work, labor or render such services as defined in Article 9 of the Bid Form. The Bid Form contains spaces for the following information when listing Subcontractors: (1) portion of the Work; (2) name of Subcontractor; (3) city of Subcontractor's business location; (4) California contractor license number. An inadvertent error in listing the California contractor license number shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the corrected contractor's license number is submitted in writing by, and actually received from, the Bidder within 24 hours after the bid opening and provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor. The failure to list, on the Bid Form, any one of the items set forth above will result in the University treating the Bid as if no Subcontractor was listed for that portion of the Work and Bidder will thereby represent to University that Bidder agrees that it is fully qualified to perform that portion of the Work and shall perform that portion of the Work.

3.4.2 Subcontractors listed in the Bid Form shall only be substituted after the Bid Deadline with the written consent of University and in accordance with the State of California "Subletting and Subcontracting Fair Practices Act."

### **3.5 ADDENDA**

3.5.1 Addenda will be issued only by University and only in writing. Addenda will be identified as such and will be available to all Planholders at the University's website at <http://rfp-rfq.ucmerced.edu/> .

3.5.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for inspection.

3.5.3 Addenda will be issued such that Planholders should receive them no later than 3 full business days prior to the Bid Deadline. Addenda withdrawing the request for Bids or postponing the Bid Deadline may be issued any time prior to the Bid Deadline.

3.5.4 Each Bidder shall be responsible for ascertaining, prior to submitting a Bid, that it has received all issued Addenda.

### **3.6 BUILDER'S RISK PROPERTY INSURANCE**

3.6.1 University will provide builder's risk property insurance subject to the deductibles in the policy as required by the General Conditions if the Contract Sum exceeds \$300,000 at the time of award and the requirements of the Project are not excluded by such coverage. A summary of the provisions of the policy is included as an Exhibit to the Contract; the policy may be reviewed at the Facility office. Bidder agrees that the University's provision of builder's risk property insurance containing said provisions meets the University's obligation to provide builder's risk property insurance under the Contract and, in the event of a conflict between the provisions of the policy and any summary or description of the provisions contained herein or otherwise, the provisions of the policy shall control and shall be conclusively presumed to fulfill the University's obligation to provide such insurance.

## **ARTICLE 4**

### **PRE-BID CONFERENCE**

4.1 Bidder shall attend the Pre-Bid Conference at which the requirements of the Bidding Documents are reviewed by University, comments and questions are received from Bidders, and a Project site visit is conducted. University requires all Pre-Bid Conference attendees to arrive for the meeting on time and to sign an attendance list, which in turn is used to determine if Bidders meet this requirement. Any Bidder not attending the Pre-Bid Conference in its entirety will be deemed to have not complied with the requirements of the Bidding Documents and its Bid will be rejected.

## **ARTICLE 5**

### **BIDDING PROCEDURES**

#### **5.1 FORM AND STYLE OF BIDS**

5.1.1 Bids shall be submitted on the Bid Form included with the Bidding Documents. Bids not submitted on the University's Bid Form shall be rejected.

5.1.2 The Bid Form shall be filled in legibly in ink or by typewriter. All portions of the Bid Form must be completed and the Bid Form must be signed before the Bid is submitted. Failure to comply with the requirements of this Article 5.1.2 will result in the Bid being rejected as nonresponsive.

5.1.3 Bidder's failure to submit a price for any Alternate or Unit Price will result in the Bid being considered as nonresponsive. If Alternates are called for and no change in the Lump Sum Base Bid is required, indicate "No Change" by marking the appropriate box.

5.1.4 Bidder shall make no stipulations on the Bid Form nor qualify the Bid in any manner.

5.1.5 The Bid Form shall be signed by a person or persons legally authorized to bind Bidder to a contract. Bidder's Representative shall sign and date the Declaration included in the Bid Form. Failure to sign and date the declaration will cause the Bid to be rejected.

## **5.2 BID SECURITY**

5.2.1 Each Bid shall be accompanied by Bid Security in the amount of 10% of the Lump Sum Base Bid as security for Bidder's obligation to enter into a Contract with University on the terms stated in the Bid Form and to furnish all items required by the Bidding Documents. Bid Security shall be a Bid Bond on the form provided by University and included herein, or a certified check made payable to "The Regents of the University of California." When a Bid Bond is used for Bid Security, failure to use University's Bid Bond form will result in the rejection of the Bid. Bidder must use the Bid Bond form provided by the University or an exact, true and correct photocopy of such form. The Bid Bond form may not be retyped, reformatted, transcribed onto another form, or altered in any manner except for the purpose of completing the form.

5.2.2 If the apparent lowest responsible Bidder fails to sign the Agreement and furnish all items required by the Bidding Documents within the time limits specified in these Instructions to Bidders, University may reject such Bidder's Bid and select the next apparent lowest responsible Bidder until all Bids have been exhausted or University may reject all Bids. The Bidder whose Bid is rejected for such failure(s) shall be liable for and forfeit to University the amount of the difference, not to exceed the amount of the Bid Security, between the amount of the Bid of the Bidder so rejected and the greater amount for which University procures the Work.

5.2.3 If a Bid Bond is submitted, the signature of the person executing the Bid Bond must be notarized. If an attorney-in-fact executes the Bid Bond on behalf of the surety, a copy of the current power of attorney bearing the notarized signature of the appropriate corporate officer shall be included with the Bid Bond. Additionally, the surety issuing the Bid Bond shall be, on the Bid Deadline, an admitted surety insurer (as defined in the California Code of Civil Procedure Section 995.120).

5.2.4 Bid Security will be returned after the contract has been awarded. Notwithstanding the preceding, if a Bidder fails or refuses, within 10 days after receipt of notice of selection, to sign the Agreement or submit to University all of the items required by the Bidding Documents, the University will retain that Bidder's Bid Security. If the Bid Security is in the form of a Bid Bond, the Bid Security will be retained until the University has been appropriately compensated; if the Bid Security is in the form of certified check, the University will negotiate said check and after deducting its damages, return any balance to Bidder.

## **5.3 SUBMISSION OF BIDS**

5.3.1 The Bid Form, Bid Security, and all other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the office designated in the Supplementary Instructions to Bidders for receipt of Bids. The envelope shall be identified with the Project name, Bidder's name and address, and, if applicable, the designated portion of the Project for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

5.3.2 Bids shall be deposited at the designated location on or before the Bid Deadline. A Bid received after the Bid Deadline will be returned to Bidder unopened.

5.3.3 Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

5.3.4 Oral, telephonic, electronic mail (e-mail), facsimile, or telegraphic Bids are invalid and will not be accepted.

## **5.4 MODIFICATION OR WITHDRAWAL OF BID**

5.4.1 Prior to the Bid Deadline, a submitted Bid may be modified or withdrawn by notice to the Facility receiving Bids at the location designated for receipt of Bids. Such notice shall be in writing over the signature of Bidder and, in order to be effective, must be received on or before the Bid Deadline. A modification so made shall be worded so as not to reveal the amount of the original Bid.

5.4.2 A withdrawn Bid may be resubmitted on or before the Bid Deadline, provided that it then fully complies with the Bidding Requirements.

5.4.3 Bid Security shall be in an amount sufficient for the Bid as modified or resubmitted.

5.4.4 Bids may not be modified, withdrawn, or canceled within 60 days after the Bid Deadline unless otherwise provided in Supplementary Instructions to Bidders.

## **ARTICLE 6**

### **CONSIDERATION OF BIDS**

#### **6.1 OPENING OF BIDS**

6.1.1 Bids which have the required identification as stipulated in Article 5.3.1 and are received on or before the Bid Deadline will be opened publicly.

#### **6.2 REJECTION OF BIDS**

6.2.1 University will have the right to reject all Bids.

6.2.2 University will have the right to reject any Bid not accompanied by the required Bid Security or any other item required by the Bidding Documents, or a Bid which is in any other way incomplete or irregular.

#### **6.3 AWARD**

6.3.1 University will have the right, but is not required, to waive nonmaterial irregularities in a Bid. If the University awards the Contract, it will be awarded to the responsible Bidder submitting the lowest responsive Bid as determined by University and who is not rejected by University for failing or refusing, within 10 days after receipt of notice of selection, to sign the Agreement or submit to University all of the items required by the Bidding Documents.

6.3.2 University will have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents. The opening of Bids and evaluation of Alternates will be conducted in accordance with a procedure that, at University's option, either (i) prescribes, prior to the time of Bid opening, the order in which Alternates will be selected or (ii) prevents, before the determination of the apparent low Bidder has been made, information that would identify which Bid belongs to which Bidder from being revealed to the representative of the University selecting the Alternates to be used in determining the low Bidder. After determination of the apparent low Bidder has been made, University will publicly disclose the identity of each Bidder that submitted a Bid and the amount of each such Bid.

6.3.3 University will determine the low Bidder on the basis of the sum of the Lump Sum Base Bid plus all Unit Prices multiplied by their respective Estimated Quantities as stated in the Bid Form, if any, plus the daily rate for Compensable Delay multiplied by the "multiplier" as stated in the Bid Form, plus the amounts of all Alternates to be included in the Contract Sum at the time of award.



The Contract Sum will be the sum of the Lump Sum Base Bid and the additive or deductive amounts for all Alternates that University has elected to be included in the Contract Sum as of the time of award.

6.3.4 The University will post the Bid results in a public place at the address where the Bids are received (unless another address is specified in the Bidding Documents).

6.3.5 University will select the apparent lowest responsive and responsible Bidder and notify such Bidder on University's form within 50 days (unless the number of days is modified in Supplementary Instructions to Bidders) after the Bid Deadline or reject all Bids. Within 10 days after receipt of notice of selection as the apparent lowest responsive and responsible Bidder, Bidder shall submit to University all of the following items:

- .1 Three originals of the Agreement signed by Bidder.
- .2 Three originals of the Payment Bond required under Article 11 of the General Conditions.
- .3 Three originals of the Performance Bond required under Article 11 of the General Conditions.
- .4 Certificates of Insurance on form provided by University required under Article 11 of the General Conditions.
- .5 Name of, qualifications of, and references for the Superintendent proposed for the Work.
- .6 Names of all Subcontractors, with their addresses, telephone number, facsimile number, contact person, portion of the Work, California contractor license number, and designation of any Subcontractor as a Small Business Enterprise (SBE), Disadvantaged Business Enterprise (DBE), Women-owned Business Enterprise (WBE) and Disabled Veteran Business Enterprise (DVBE) on Report of Subcontractor Information in the form contained in the Exhibits. Evidence, as required by University, of the reliability and responsibility of the proposed Subcontractors such as statements of experience, statements of financial condition, and references.
- .7 Preliminary Contract Schedule as required under Article 3 of the General Conditions.
- .8 If Bidder wishes to utilize securities in lieu of retention beginning with the first Application for Payment, Selection of Retention Options accompanied by a completed Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention in the form contained in the Exhibits.
- .9 Cost Breakdown as required by Article 9 of the General Conditions.

6.3.6 Prior to award of the Contract, University will notify Bidder in writing, if University, after due investigation, objects to a Subcontractor or Superintendent proposed by Bidder, in which case Bidder shall propose a substitute acceptable to University. Substitution of Superintendent shall be made in accordance with Article 3 of the General Conditions. Substitution of a Subcontractor shall be made in accordance with Article 5 of the General Conditions. Failure of University to object to a proposed Superintendent or Subcontractor prior to award shall not preclude University from requiring replacement of Superintendent or any Subcontractor based upon information received subsequent to award, information which cannot be properly evaluated prior to award due to time constraints, or information relating to a failure to comply with the requirements of the Contract.

6.3.7 If Bidder submits three originals of the signed Agreement and all other items required to be submitted to University within 10 days after receipt of notice of selection as the apparent lowest responsive and responsible Bidder, and if all such items comply with the requirements of the Bidding Documents and are acceptable to University, University will award the Contract to Bidder by signing the Agreement and returning a signed copy of the Agreement to Bidder.

6.3.8 If University consents to the withdrawal of the Bid of the apparent lowest responsive and responsible Bidder, or the apparent lowest responsive and responsible Bidder fails or refuses to sign the Agreement or submit to University all of the items required by the Bidding Documents, within 10 days after receipt of notice of selection, or that Bidder is not financially or otherwise qualified to perform the Contract, University may reject such Bidder's Bid and select the next apparent lowest responsive Bidder, until all Bids are exhausted, or reject all Bids. Any Bidder whose Bid is rejected because the Bidder has failed or refused, within 10 days after receipt of notice of selection, to sign the Agreement or submit to University all of the items required by the Bidding Documents, shall be liable to the University for all resulting damages.

## **ARTICLE 7**

### **BID PROTEST**

#### **7.1 FILING A BID PROTEST**

7.1.1 Any Bidder, person, or entity may file a Bid protest. The protest shall specify the reasons and facts upon which the protest is based and shall be in writing and received by the Facility not later than 5:00 pm on the 3<sup>rd</sup> business day following:

- .1 if the Bid Form does not contain any Alternate(s), the date of the Bid opening;
- .2 if the Bid Form contains any Alternate(s), the date of posting in a public place of Bid results.

7.1.2 If a Bid is rejected by the Facility, and such rejection is not in response to a Bid protest, any Bidder, person or entity may dispute that rejection by filing a Bid protest (limited to the rejection) in writing and received by the Facility not later than 5:00 pm on the 3<sup>rd</sup> business day following the rejected Bidder's receipt of the notice of rejection.

7.1.3 For the purpose of computing any time period in this Article 7, the date of receipt of any notice shall be the date on which the intended recipient of such notice actually received it. Delivery of any notice may be by any means, with verbal or written confirmation of receipt by the intended recipient.

#### **7.2 RESOLUTION OF BID CONTROVERSY**

7.2.1 Facility will investigate the basis for the Bid protest and analyze the facts. Facility will notify Bidder whose Bid is the subject of the Bid protest of evidence presented in the Bid protest and evidence found as a result of the investigation, and, if deemed appropriate, afford Bidder an opportunity to rebut such evidence, and permit Bidder to present evidence that it should be allowed to perform the Work. If deemed appropriate by Facility, an informal hearing will be held. Facility will issue a written decision within 15 days following receipt of the Bid protest, unless factors beyond Facility's reasonable control prevent such a resolution, in which event such decision will be issued as expeditiously as circumstances reasonably permit. The decision will state the reasons for the action taken by Facility. A written copy of the decision will be furnished to the protestor, the Bidder whose Bid is the subject of the Bid protest, and all Bidders affected by the decision. As used in this Article 7, a Bidder is affected by the decision on a Bid protest if a decision on the protest could have resulted in the Bidder not being the lowest responsive and responsive Bidder for

the Contract. A written copy of the Facility's decision must be received by the protester, the Bidder whose Bid is the subject of the Bid protest, and all Bidders affected by the decision no later than 3 business days prior to award of the contract.

7.2.2 Notwithstanding the provisions of Article 7.2.1, at the election of Facility, a Bid protest may be referred directly to University's Construction Review Board without prior investigation and review by Facility. The Chair of the Construction Review Board will either decide the Bid protest or appoint a Hearing Officer. If a Hearing Officer is appointed, the Hearing Officer will review the Bid protest in accordance with the provisions of Article 7.2.4.

7.2.3 Bidder whose Bid is the subject of the protest, all Bidders affected by the Facility's decision on the protest, and the protestor have the right to appeal to the Construction Review Board if not satisfied with Facility's decision. The appeal must be in writing and shall specify the decision being appealed and all the facts and circumstances relied upon in support of the appeal. A copy of the appeal must be received by the Chair, Construction Review Board, not later than 5:00 pm on the 3rd business day following appellant's receipt of the written decision of Facility, at the following address:

Chair, Construction Review Board  
University of California  
Office of the President  
1111 Franklin Street, 6<sup>th</sup> Floor  
Oakland, CA 94607-5200  
Attention: Director, Construction Services

**And, by email to:**

constructionreviewboard@ucop.edu

A copy of the appeal must be sent to all parties involved in the Bid protest and to Facility, to the same address and in the same manner as the original protest. An appeal received after 5:00 pm is considered received as of the next business day. If the final date for receipt of an appeal falls on a Saturday, Sunday, or University holiday, the appeal will be considered timely only if received by 5:00 pm on the following business day. The burden of proving timely receipt of the appeal is on the appealing party.

7.2.4 The Chair of the Construction Review Board will review the Facility's decision and the appeal, and issue a written decision, or if appropriate, appoint a Hearing Officer to conduct a hearing and issue a written decision. If a hearing is held, the hearing shall be held not later than the 10th day following the appointment of the Hearing Officer unless the Hearing Officer for good cause determines otherwise. The written decision of the Chair or Hearing Officer will state the basis of the decision, and the decision will be final and not subject to any further appeal to University. The Chair or Hearing Officer may consult with the University's Office of the General Counsel on the decision as to legal form. The University will complete its internal Bid protest procedures before award of the Contract.

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

1. Requests for clarification or interpretation of the Bidding Documents must be in **writing** and received by **Wednesday, July 19, 2018 at 4:00 P.M.** Questions received after the above-noted deadline may be answered at the discretion of the University's Representative. **Questions shall be E-Mailed:**

Fran Telechea - University of California, Merced  
Email : ftelechea@ucmerced.edu

Revisions, additions or deletions will be made by written addenda issued by Facilities Management only.

2. A **NON-MANDATORY** Pre-Bid Conference will be conducted on Tuesday, July 17, 2018 beginning promptly at 10:00 am. Participants shall meet at 5200 N. Lake Rd, Merced, CA 95343, UC Merced Campus, at Kolligian Library (KL) First Floor Lantern . Parking permits are required throughout campus and are available at the yellow dispenser at LeGrand and North Bowl.

If you need accommodations related to disabilities, please call Fran Telechea @ 209-201-8174 at least 3 working days prior to Pre-Bid Conference/Project Site Visit or Bid Opening.

4. Bids will be received on or before the Bid Deadline and only at:

**Hand or Overnight  
Delivery Only**

Attn: Fran Telechea  
University of California, Merced  
655 West 18<sup>th</sup> Street  
Merced California 95340

5. Bids will be opened at:

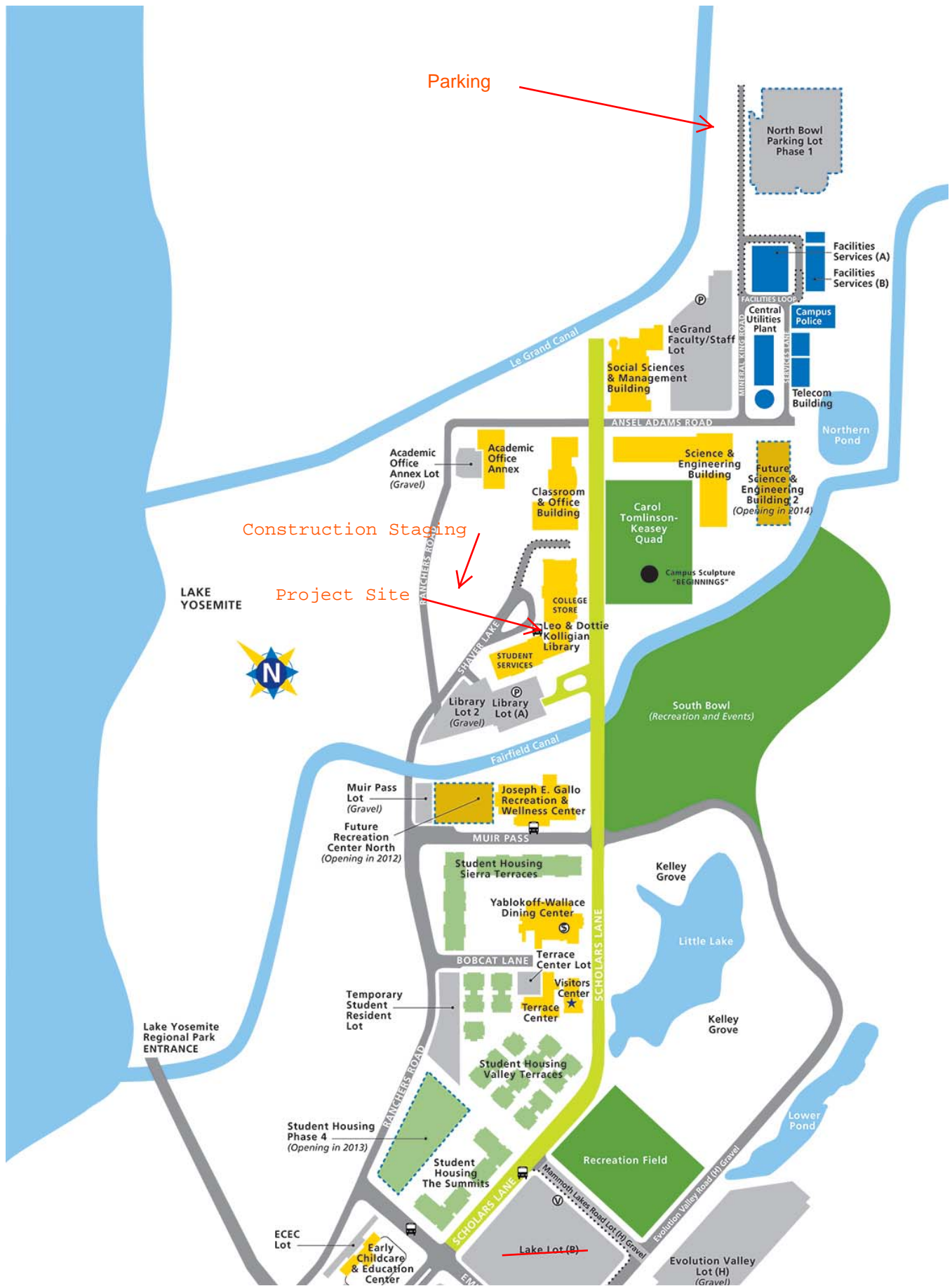
**2:00 PM  
Thursday, July 26, 2018  
655 West 18<sup>th</sup> Street  
Merced California 95340**

6. If Contractor fails to meet Substantial Completion milestones as described in the summary of work 01 11 10 part Contractor shall be assessed liquidated damages in the amount of \$1,500.00 per day for each calendar day following the specified date of Substantial Completion for that phase where the Work remains incomplete (Saturdays, Sundays, and holidays included).
7. Contract Time: 63 Calendar days.
8. Addenda will be issued only by University and only in writing. Addenda will be identified as such and will be emailed to all Prequalified Bidders who attend the mandatory pre-bid conference.

**INFORMATION AVAILABLE TO BIDDERS**

The following information is made available for the convenience of bidders and is not a part of the Contract. The information is provided subject to the provisions of Article 3 of the General Conditions.

1. State of California, Department of Industrial Relations, Prevailing Wage Determinations for Statewide, Northern California, and Merced County may be found at [http://www.dir.ca.gov/DLSR/statistics\\_research.html](http://www.dir.ca.gov/DLSR/statistics_research.html)
  - A. No special determinations have been received from the Department of Industrial Relations for this project.
  - B. 1st publication date of the Advertisement for Bids.



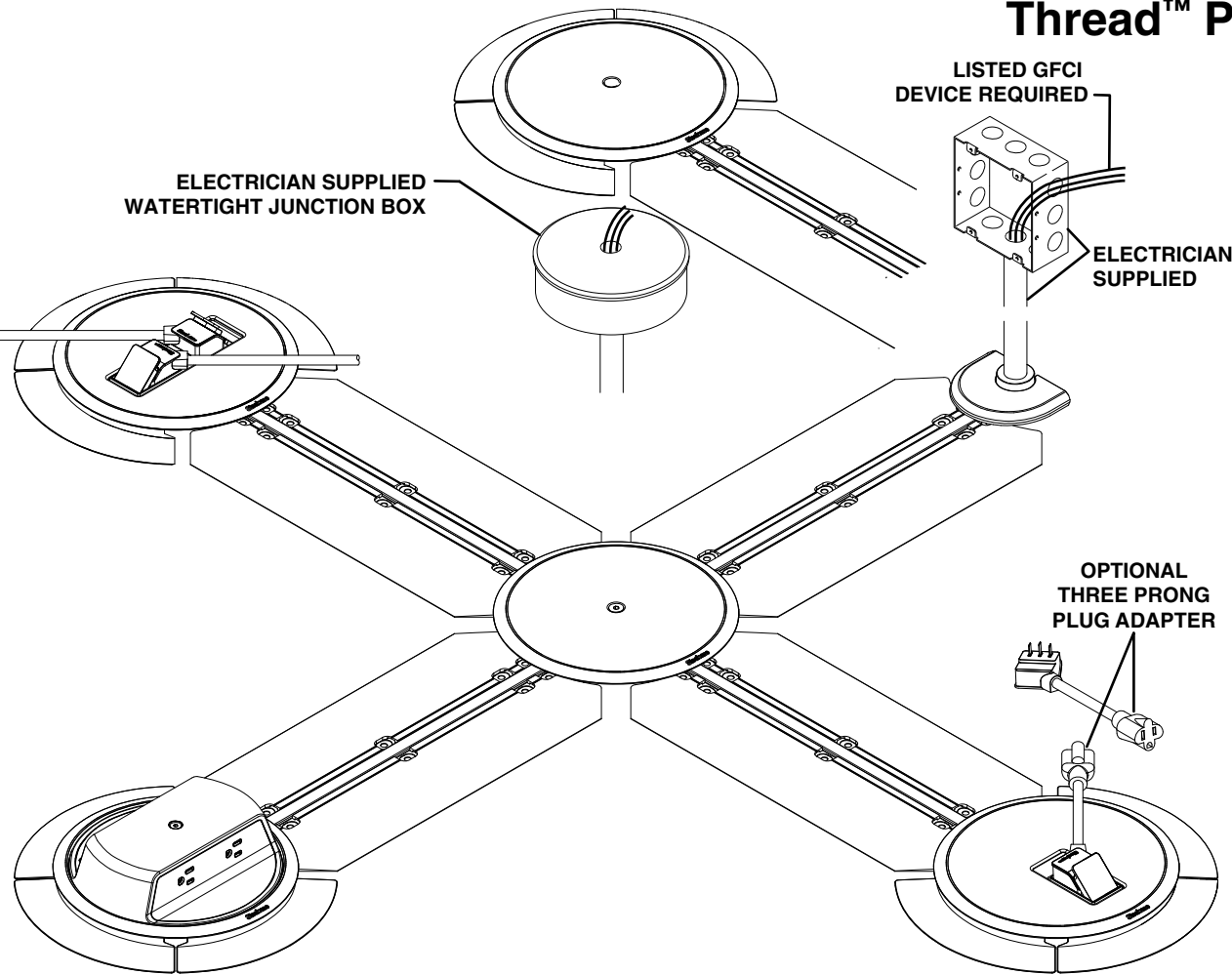
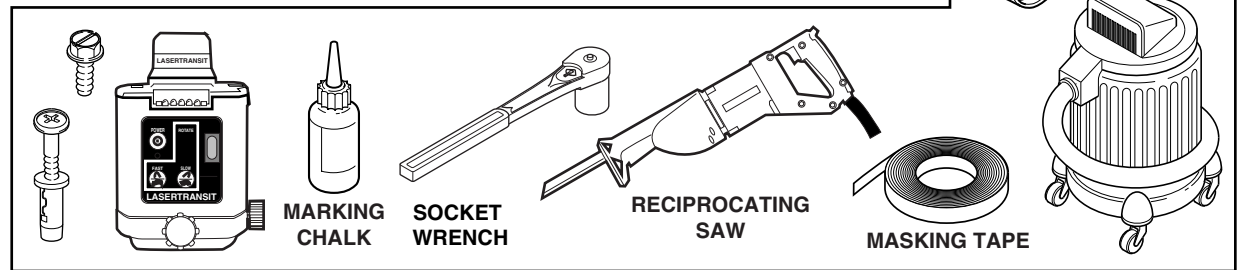
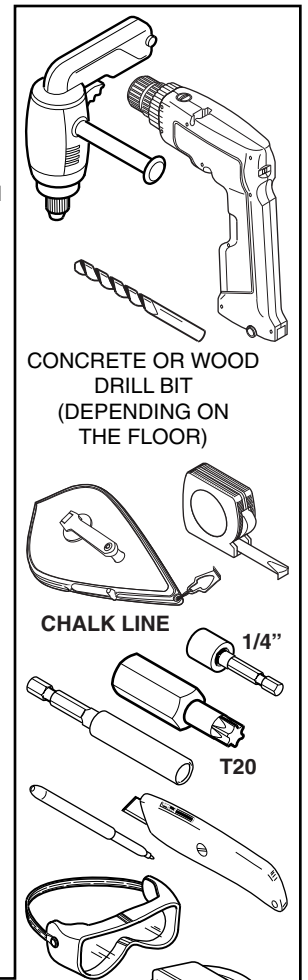


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If you have a problem, question, or request, call your local dealer, or Steelcase Line 1 at **888.STEELCASE** (888.783.3522) for immediate action by people who want to help you.

(Outside the U.S.A., Canada, Mexico, Puerto Rico, and the U.S. Virgin Islands, call: 1.616.247.2500) Or visit our website: [www.steelcase.com](http://www.steelcase.com)

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24207101 Rev G

## ⚠ WARNING



### RISK OF FIRE OR ELECTRIC SHOCK

Read all of these assembly directions BEFORE beginning installation. This system must be installed by qualified personnel in accordance with local codes.



- Before drilling holes to anchor Thread to building floor, verify floor does NOT contain hidden electrical wiring, structural cabling, radiant heat systems, or other obstructions. Consult with the building's architect or Engineer of Record to plan accordingly.

- Only connect this system to a dedicated **120-127 V~ 60Hz 20A** single phase GFCI protected building power circuit (bare copper or green wire is ground, white wire is neutral, and black wire is hot).
- The building electrical supply connection must be performed by a licensed electrician.



- Inspect all parts of system before installation to ensure there is no damage to any of the parts. Do not use the Power Track Infeed or Power Track if they are damaged during handling or are damaged in the installed position. All damaged parts must be replaced before installation.

- Only install and use this system on sub-floors made of concrete or wood that are prepared as follows:
  - Remove all high points or bumps taller than 1/8 inch in the sub-floor along the installation path.
  - Abrupt height changes greater than 1/8 inch must be filled in and gradually ramped over a distance of 12 inches.
  - Within 9 inches from the center of a connector, the sub floor must be flat within 1/16 inch.
  - Holes equal to or greater than 1 inch across must be filled with floor patch and sanded down to the main floor surface.
  - Ensure all debris is removed from the installation path.
  - (For floor infeed) Flush mounted box must be within 1/16 inch of flush to adjacent floor.



- Only install and use this system indoors in dry locations.
- To prevent liquids from entering product, connect or cap each receptacle opening per these Assembly Directions.
- To prevent liquids from entering product, assemble the floor infeed per these Assembly Directions.



## ⚠ WARNING

### RISK OF FIRE OR ELECTRIC SHOCK



- Do not install this modular system across building floor expansion joints.
- Do not install this system on raised flooring.
- Do not install this system in an area where it will be subjected to constant or rolling loads heavier than people.
- Ensure that panel systems, wall systems (V.I.A. or Privacy Wall) or systems furniture is not installed on top of the Power Track Infeed, Power Track, or Connectors.
- All hinged cover doors must be free from obstructions and allowed to close fully after installation.
- Disconnect unit from power before assembly or disassembly.
- Do not modify parts. No user serviceable parts inside the system.

## ⚠ CAUTION

### TRIP AND FALL HAZARD



- NEMA Monument height can cause tripping, do not install in circulation paths. Review layout with architect or designer to verify circulation paths.
- Carpet plus pad thickness must be between 0.225 and 0.450 inches to minimize risk of trip and fall especially at Blank, One Door, and Two Door Low Profile Connectors. Luxury vinyl tile must be between 0.100 and 0.250 inches and must use a 5mm inflexible underlayment installed.
- Do NOT use finished flooring other than carpet squares, rolled carpet, luxury vinyl tile, or other conformable type flooring.

## NOTICE

- Not Approved for use in Hospital Patient Care Areas or other spaces where Hospital Grade receptacles are required.
- The Blank, One Door, and Two Door Low Profile Connectors can be located in circulation paths and meet accessibility requirements as long as the carpet plus pad thickness is between 0.225 and 0.450 inches or luxury vinyl tile flooring is between 0.100 and 0.250 inches plus underlayment.
- Do not exceed maximum 70 ft in overall length.

## Thread Assembly Checklist:

- Read and Understand Assembly Directions (Pay extra attention to Warnings, Cautions, and Notices).
- All disciplines have been contacted and have reviewed assembly directions (Electrician, Dealer/Installer, Carpet Installer, Dry Wall Repair/Paint (in-wall installation only)).
- Pre-job Briefing Conducted by Person Responsible for Installation (Page 5).
- Before drilling, verify no hidden hazards in floor conflicting with layout of anchoring holes (Page 2).
- Verify the floor is flat according to Warnings section (Page 2).
- For in-wall installation only: Cut the wall floor plate and reattach adjacent floor plate sections to floor to allow the infeed to sit flat.
- Electrician to connect infeed to the appropriate junction box without making final building connection (Page 7-13). **NOTE:** The Thread power system must be on a GFCI protected circuit.
- Attach sections of track together, according to the designer layout, utilizing 2 screws to attach each track.
- Cover the remaining receptacles with fillers, according to the designer layout, utilizing 2 screws to attach **each** filler (NEMA filler must have provided dust cover or tape to cover receptacle).
- Anchor tracks and fillers to floor (vacuum all drilled locations prior to assembling concrete fasteners) (Page 17-19).
  - 1 screw per filler
  - 1 screw at each end of track
  - 1 screw at least every four feet along track
  - 3 screws for floor infeed cover, avoiding the junction box
- Assemble the ramps and fillers to the tracks (Page 19).
- Verify proper carpet/conformable floor covering thickness (Page 3).
- Cut holes in floor covering to provide access to connector and infeed locations (template provided) (Page 22-24).
- Roll carpet adhesive or carpet tape over raceway and ramps, avoiding the connectors (Page 24).
- Place floor covering in final position.
- Remove provided dust cover or tape from covered NEMA receptacles.
- Assemble the connector covers (Page 25).
- Ensure all required electrical inspections are completed.
- Electrician to turn on power to the Thread circuit.
- Connect all required Power Hubs, Adapters, and other attached electrical equipment.

**1.** The person in charge of the installation must conduct a pre-job briefing with the employees involved before they start each job, covering:

- Hazards associated with the job,
- Work procedures involved,
- Special precautions,
- Energy-source controls, and
- Personal protective equipment requirements (see OSHA 29 CFR 1926.952 and NFPA 70e for detail).

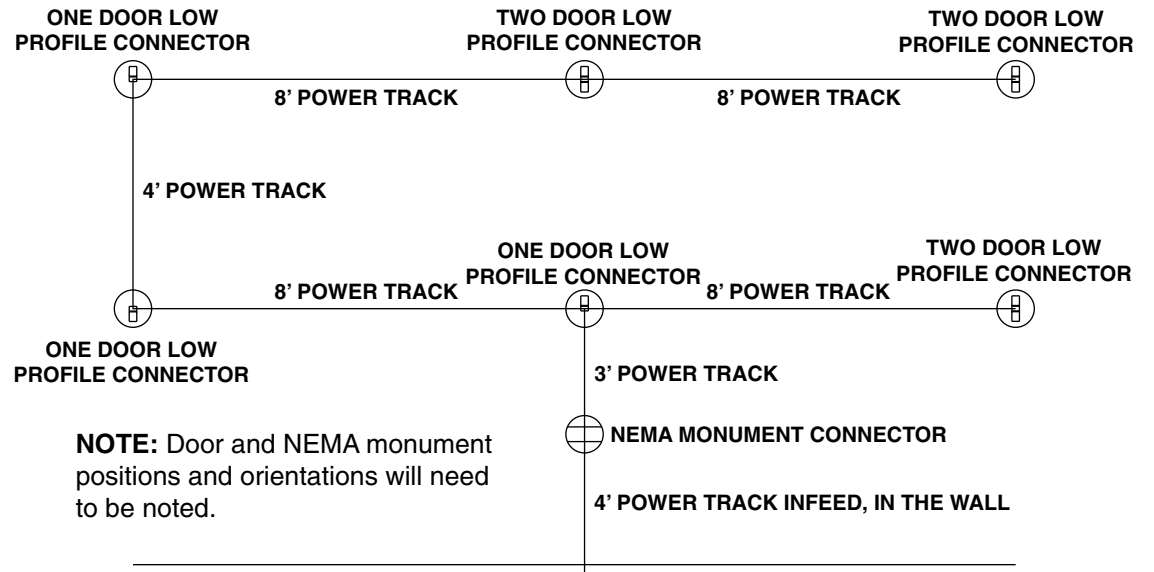
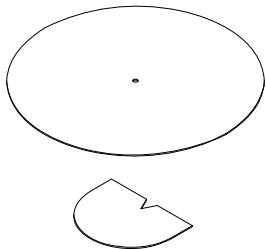
**2.** Locate the design layout of the system to be built (See example to the right).

- The design layout should have the following elements identified at all places in the system:
- Raceway type (Power Track or Power Track Infeed)
- Power Track Infeed Position (Inside of wall, outside of wall or in floor)
- Power Track length (2 feet, 3 feet,...up to 12 feet)
- Type of connector (Blank, One Door, Two Door, NEMA Monument)
- Connector orientation, ie, Orientation of the Doors or NEMA Monument.

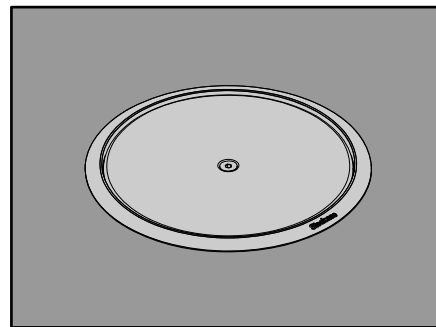
**3.** Limit length of Thread electrical run to 70 ft. max from building power connection to farthest user connection (NEMA Monument or Low Profile Connector) for proper function.

**4.** Locate the provided items:

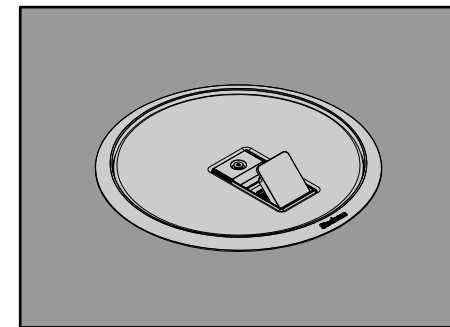
- Round Cardstock Template (Connector or Floor Infeed)
- Horseshoe Cardstock Template (Power Track Infeed - Outside of Wall)



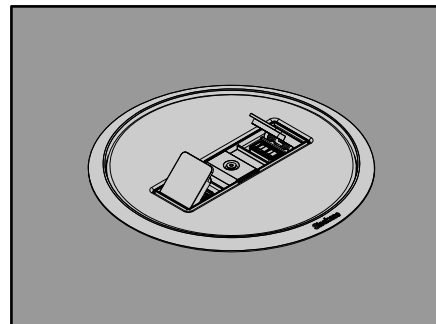
**NOTE:** Door and NEMA monument positions and orientations will need to be noted.



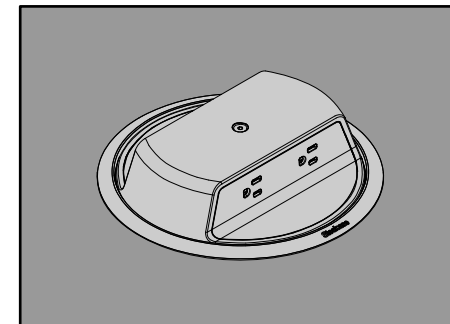
**BLANK LOW PROFILE CONNECTOR**



**ONE DOOR LOW PROFILE CONNECTOR**

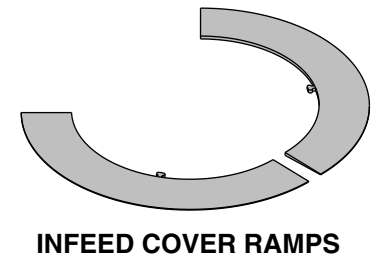
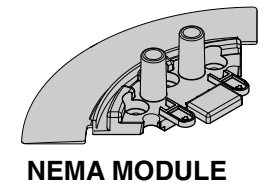
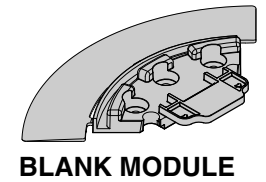
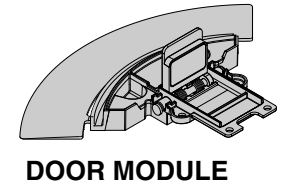
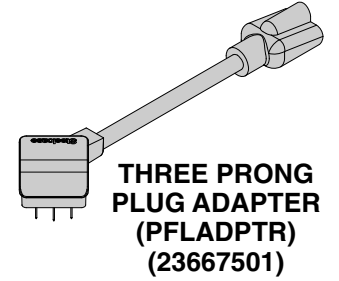
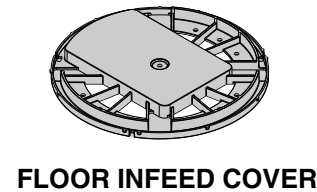
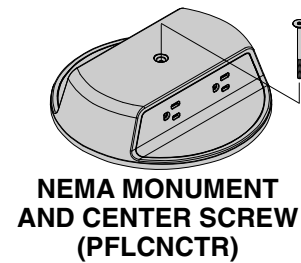
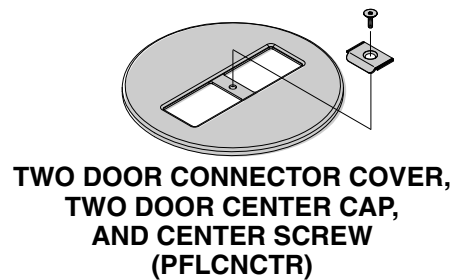
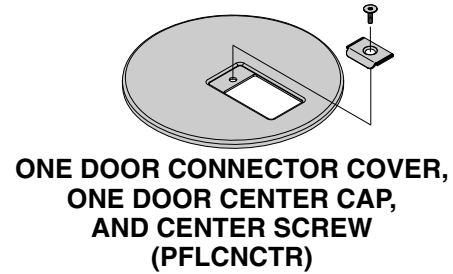
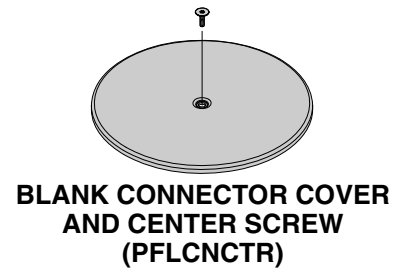
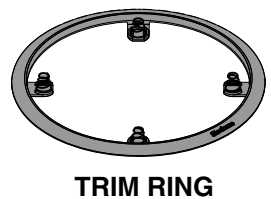
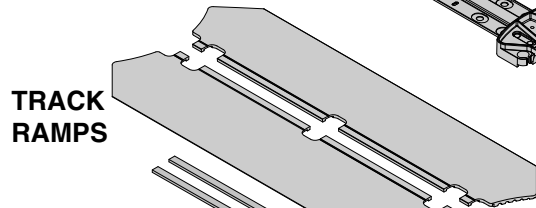
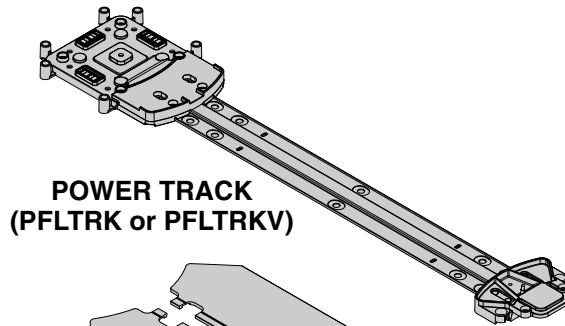
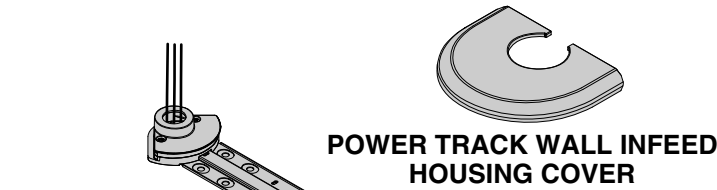
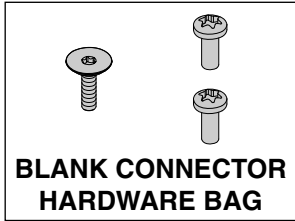


**TWO DOOR LOW PROFILE CONNECTOR**



**NEMA MONUMENT CONNECTOR**

## Part Identification



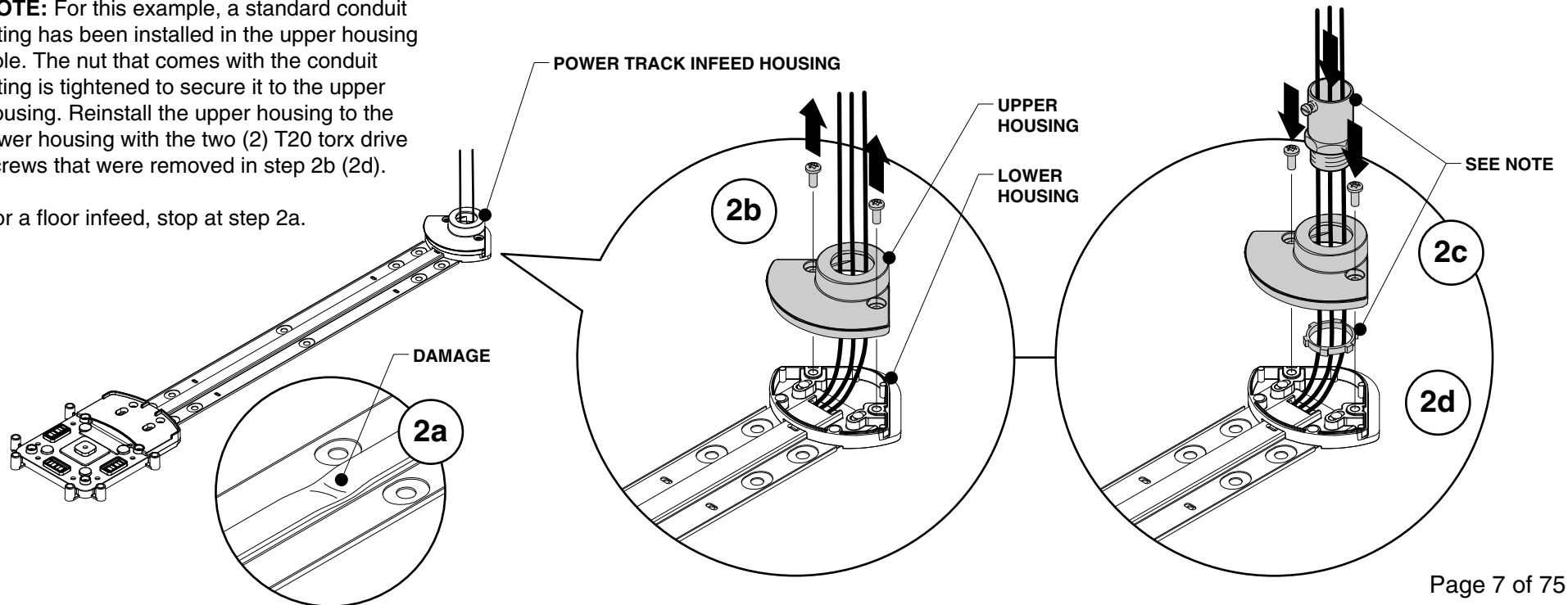
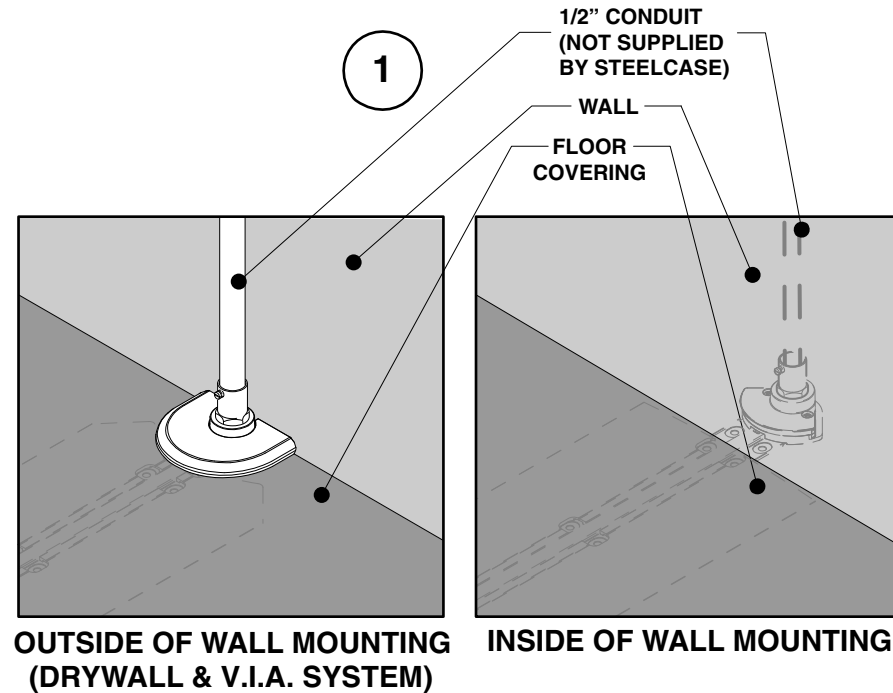
**1.** Determine if the power track infeed housing will be placed outside of the wall, inside of the wall, or in the floor above a flush mounted junction box.

**(FOR INSIDE WALL OR OUTSIDE WALL MOUNTING)**

**2.** Inspect the power track infeed housing for damage. If it is damaged, the power track infeed must be replaced (2a). The electrician removes the two (2) T20 torx drive screws holding the upper housing to the lower housing (2b). Select a standard fitting (not supplied by Steelcase) that best suits how the incoming power is fed into the system (2c).

**NOTE:** For this example, a standard conduit fitting has been installed in the upper housing hole. The nut that comes with the conduit fitting is tightened to secure it to the upper housing. Reinstall the upper housing to the lower housing with the two (2) T20 torx drive screws that were removed in step 2b (2d).

For a floor infeed, stop at step 2a.

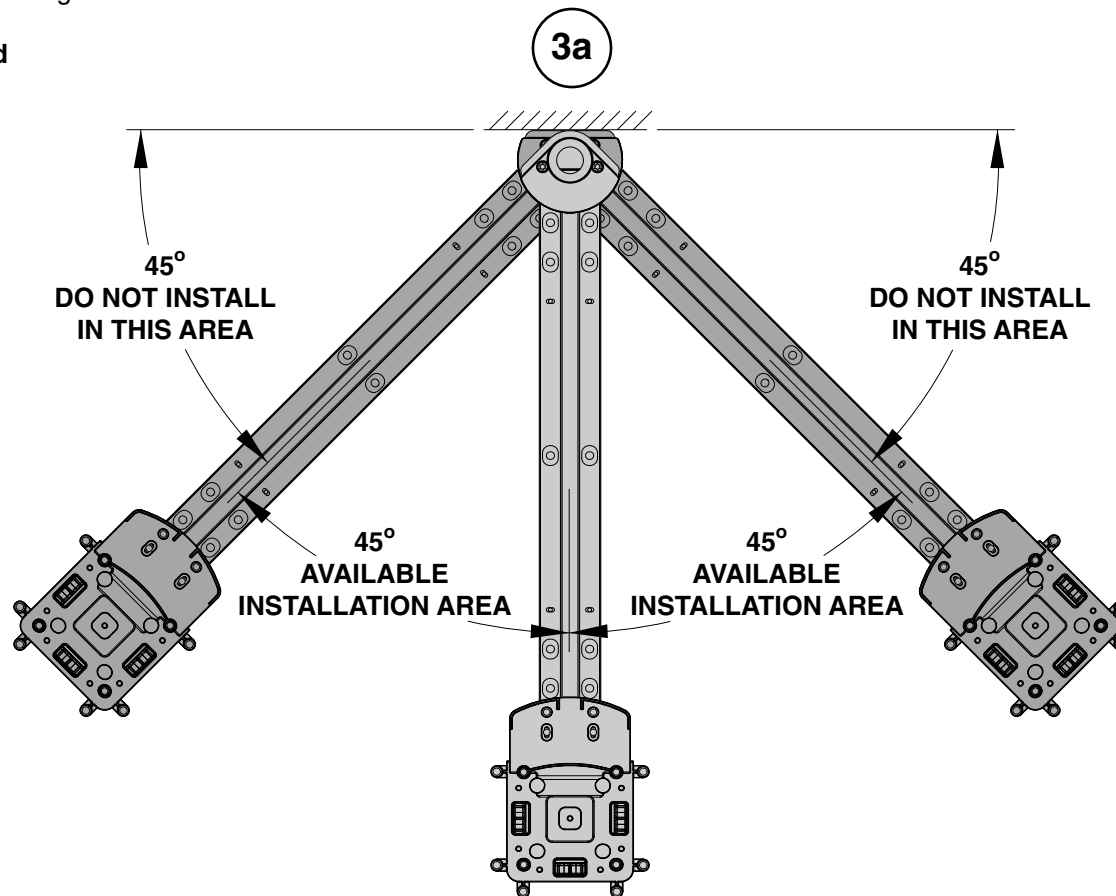


## (FOR OUTSIDE WALL MOUNTING)

**3a.** The infeed housing must be placed adjacent to the wall and can be oriented up to 45 degrees in either direction (as shown).

**NOTE:** At this point, the electrician should have the ability to install the building power without making the final connection.

**This circuit must be protected by a listed 120 V~ 20A GFCI device.**



## (FOR INSIDE WALL MOUNTING) POWER TRACK INFEED INSTALLATION

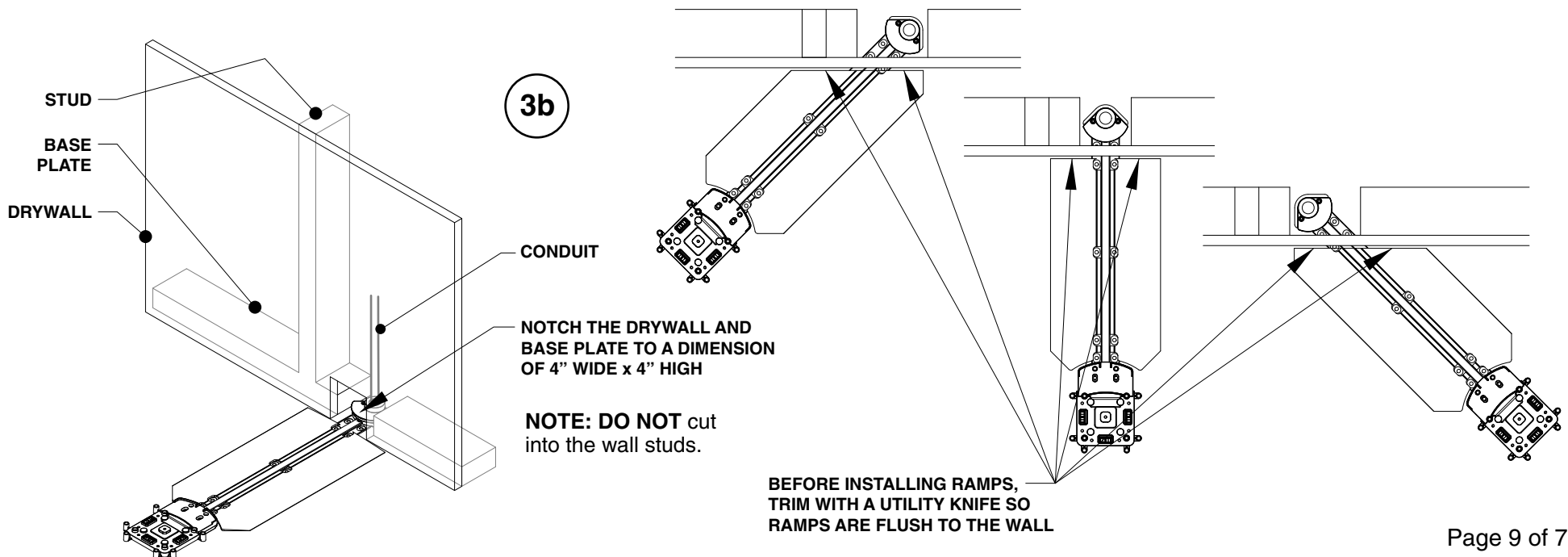
### 3b.

- Locate studs in wall and plan power track infeed housing to be located between studs.
- Remove base trim to expose wall where power track infeed will enter the wall. Cut hole in the wall large enough so that housing and infeed wire can be placed inside the wall. This may include locally removing steel or wood bottom plate.
- The electrician must now locate the most convenient junction box or install a new junction box. Connect the power track infeed to this junction box.

**NOTE:** This circuit must be protected by a listed 120 V~, 20A GFCI device.

- At this point, the electrician should have the ability to install the building power to the junction box without making the final connection to the power track infeed.
- All debris must be removed from inside the wall and on the floor to ensure the power track infeed rests flat on the sub-floor.
- Position the power track infeed housing inside the wall in its approximate final location. Verify that one of the four anchor holes on each end of the track is accessible during installation of anchor screws.

**NOTE:** A portion of each ramp will need to be removed when choosing an inside wall mount. This can be accomplished by marking a line where the ramp ends at the wall and cutting with a utility knife.



## (FOR INSIDE WALL MOUNTING) THREAD INFEEED FROM VIA SYSTEM WALL

**NOTE:** Connect Thread floor system to building power source only, not to VIA power. To infeed power to a Thread system, externally, from a VIA wall system, refer to power infeed information on pages 7 & 8.

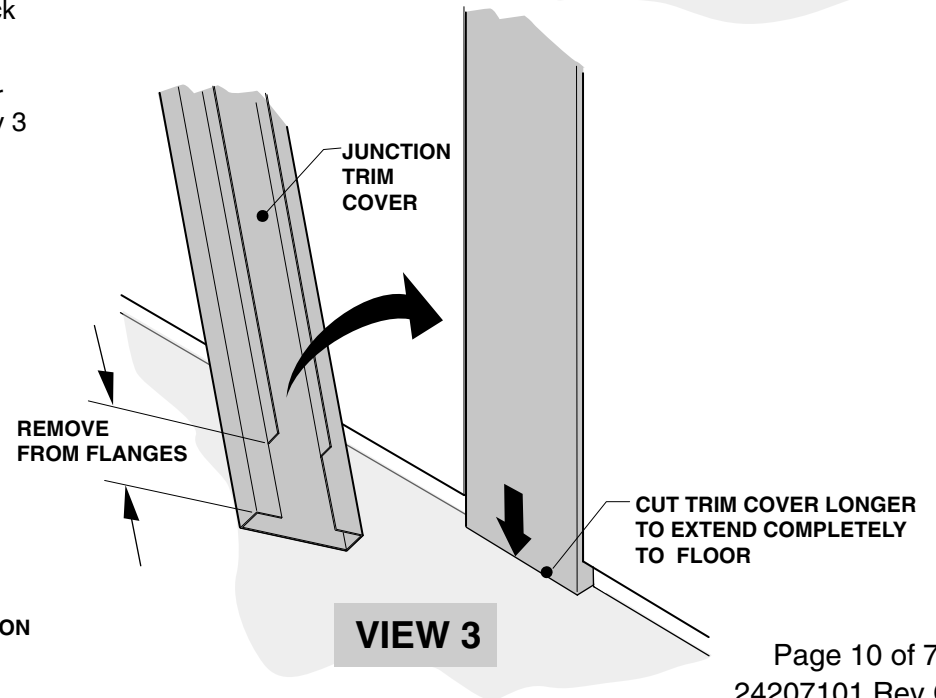
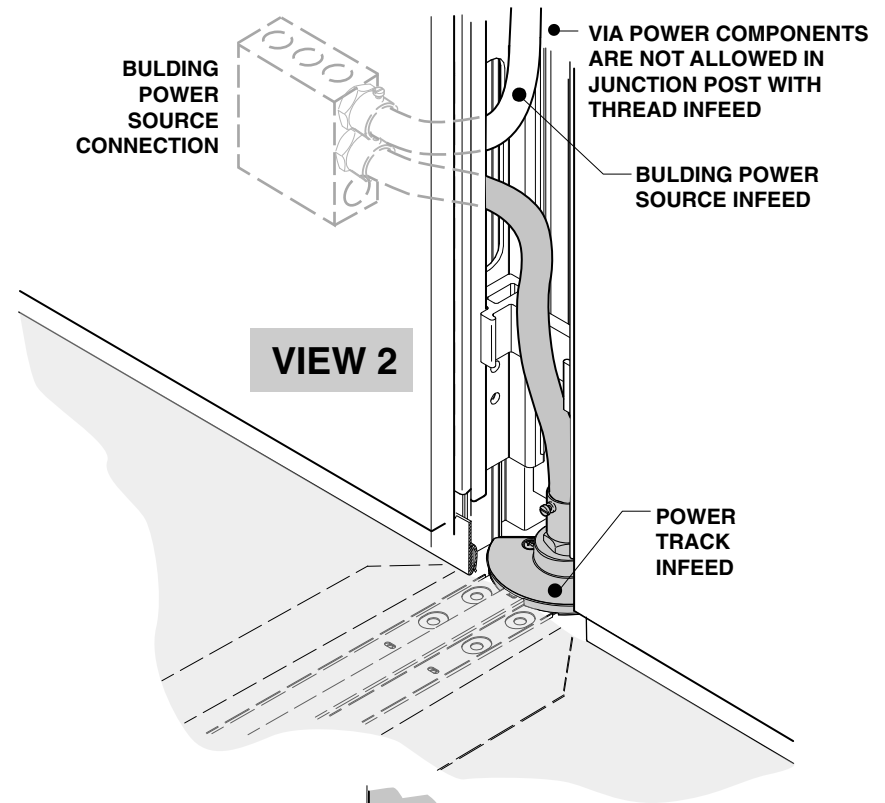
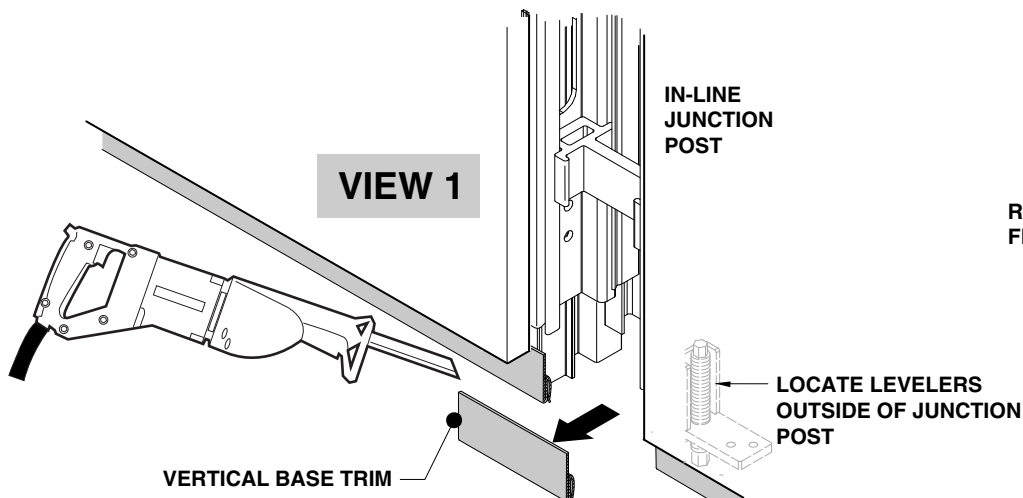
**NOTE:** When a Thread floor system is used with a VIA wall system, the Thread floor system must be completed prior to the VIA product installation. The connection of power to the Thread system from a power source inside a VIA wall must be carefully planned and coordinated to properly interface the power components of the two systems.

**NOTE:** When infeeding power, internally, from a VIA wall into a Thread power system, the entry point must be from a VIA junction post that is not adjacent to a door frame, a corner or a finished end.

### CONNECTING THE POWER TRACK

- At the base of the junction post, where the infeed power track will access the VIA junction post, cut and remove a section of the vertical base trim as noted (View 1).
- Align the wall junction with the housing of the power track infeed. Connect the track infeed to a building power source per all applicable codes (View 2).

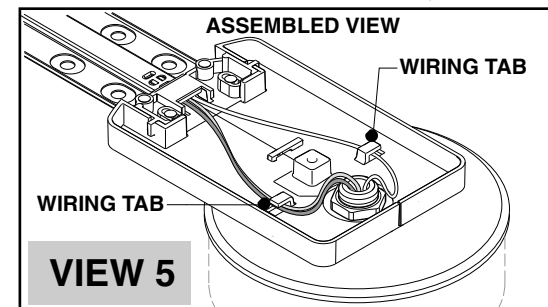
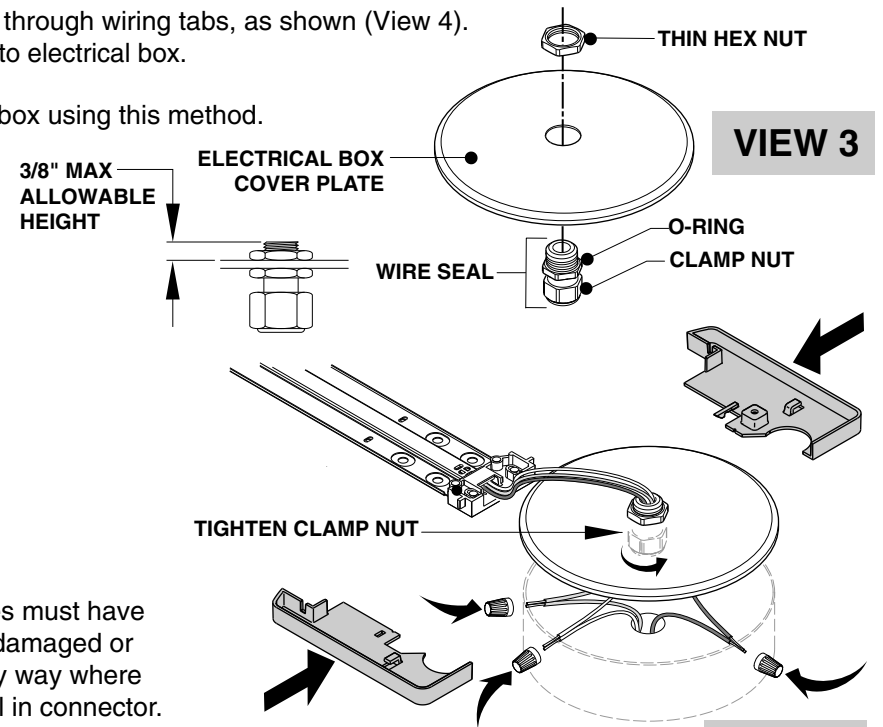
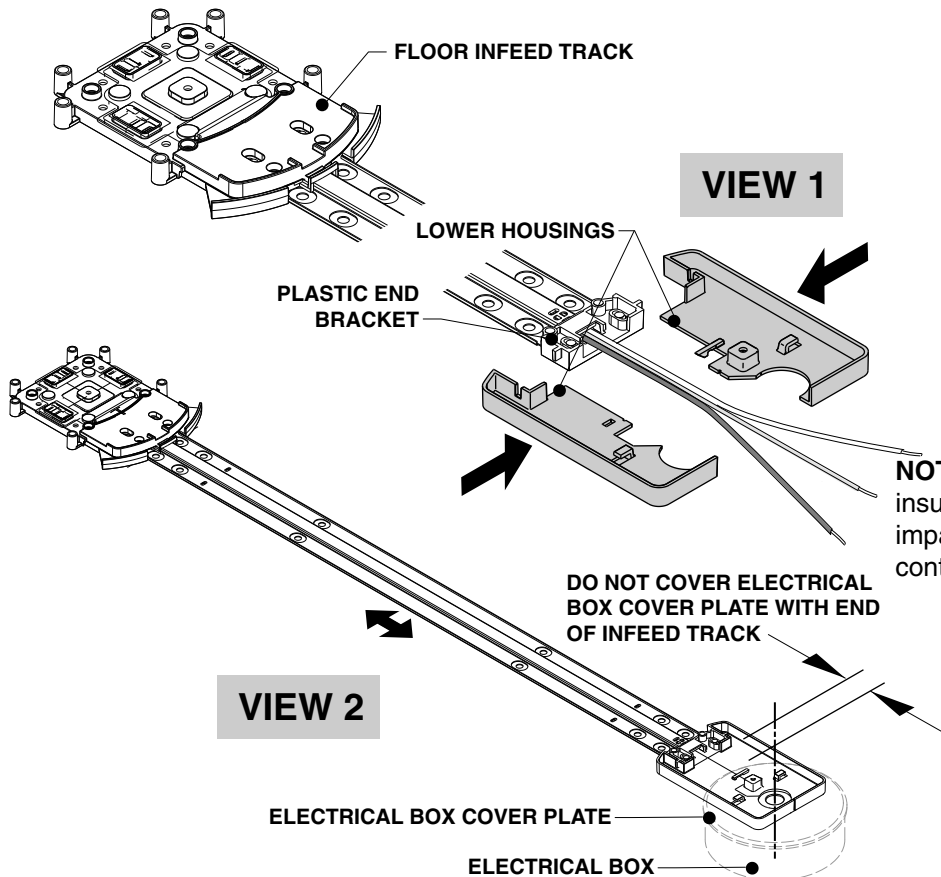
**NOTE:** Junction trim cover length must be cut to extend completely to floor to cover trimmed base open gap. Before installing junction trim cover, remove approximately 3 inches off flanges on inside of cover, as noted, for clearance (View 3).





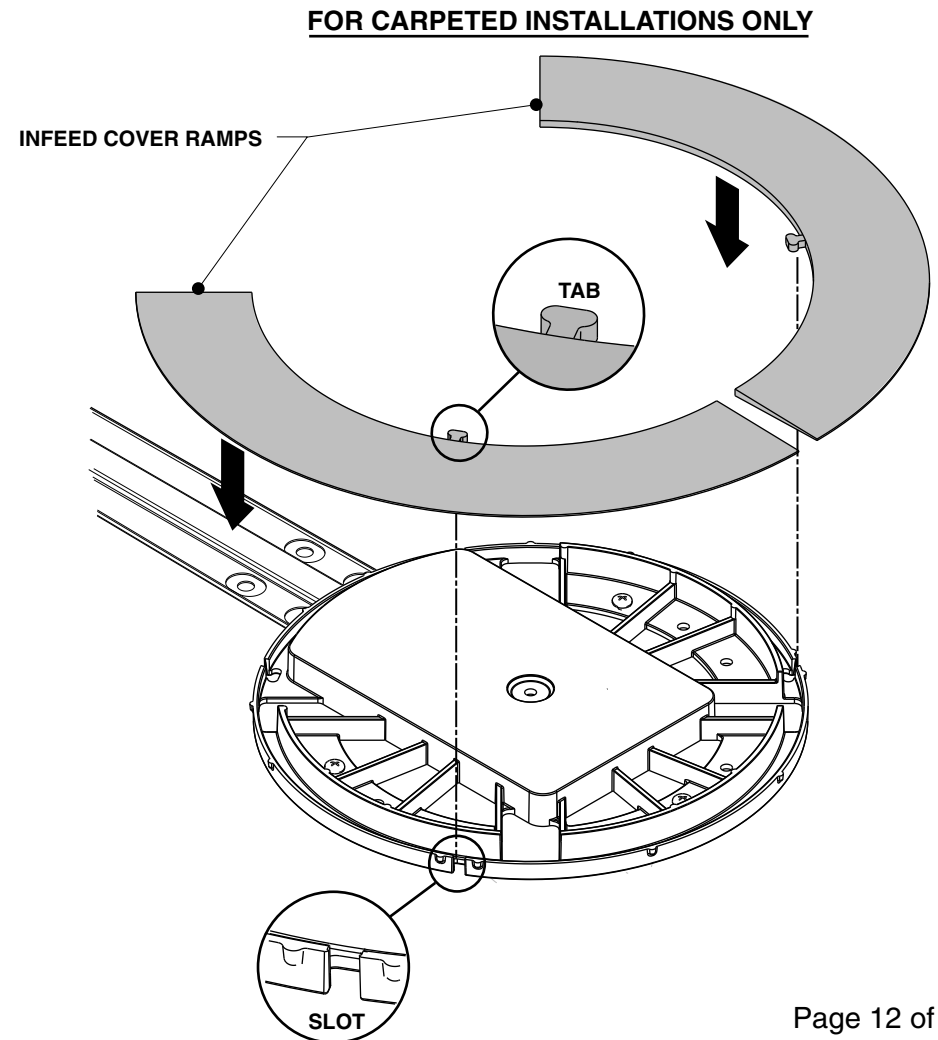
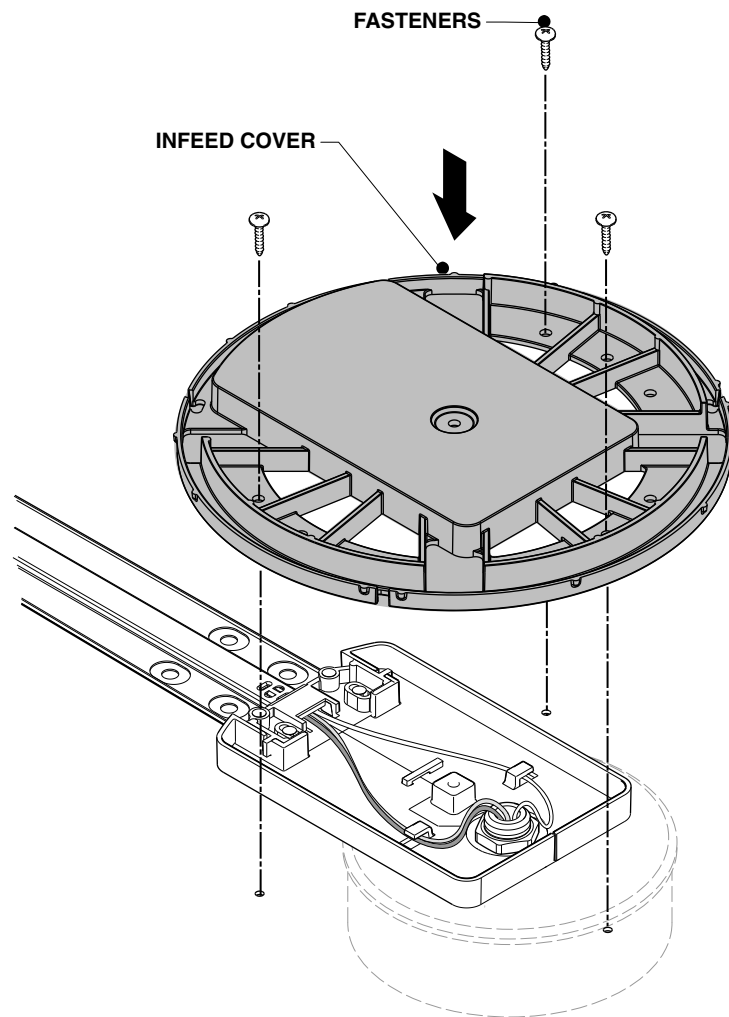
## (FOR FLOOR MOUNTING) POWER TRACK INFEED INSTALLATION

- Arrange power infeed track and two (2) lower housings, as shown. Assemble housings to track, engaging plastic end bracket and locking tab (View 1).  
**NOTE:** Floor box must be a sealed, listed box & cover and use included wire connector seal to prevent water intrusion into the box.  
**NOTE:** Floor track infeed is not a splice box.
- Place power infeed track in final position, using hole in assembled lower housings to align track with access hole in floor electrical box cover plate. Fasten power infeed track to floor, then remove assembled lower housings from installed track and remove electrical box cover plate (View 2).  
**NOTE:** End of the infeed track must not be blocking removal of electrical box cover plate.
- Assemble the supplied wire seal to the electrical box cover plate, as shown. Make sure that the assembled seal is no higher than 3/8" (9.5mm) above top surface of cover plate. Secure wire seal to cover plate with the thin hex nut (View 3).
- Route infeed track wires through the wire seal. Leave enough wiring slack to route wires through wiring tabs, as shown (View 4).
- Make all hardwire connections and tighten clamp nut to secure wires. Secure cover plate to electrical box.
- Reassemble lower housings to infeed track and route wiring as noted (View 5).  
**NOTE:** The ground fault curcuit interrupter (GFCI) device can not be located in the floor box using this method.



## (FOR FLOOR MOUNTING) POWER TRACK INFEEED INSTALLATION (Continued)

- Place the infeed cover over the assembled track and lower housings.
- Secure the infeed cover with at least two (2) fasteners, described on page 20, equally spaced in the available nine (9) mounting holes.
- For installations that do not have underlayment, install the infeed cover ramps by engaging the tabs on each ramp with the slots in the infeed cover.



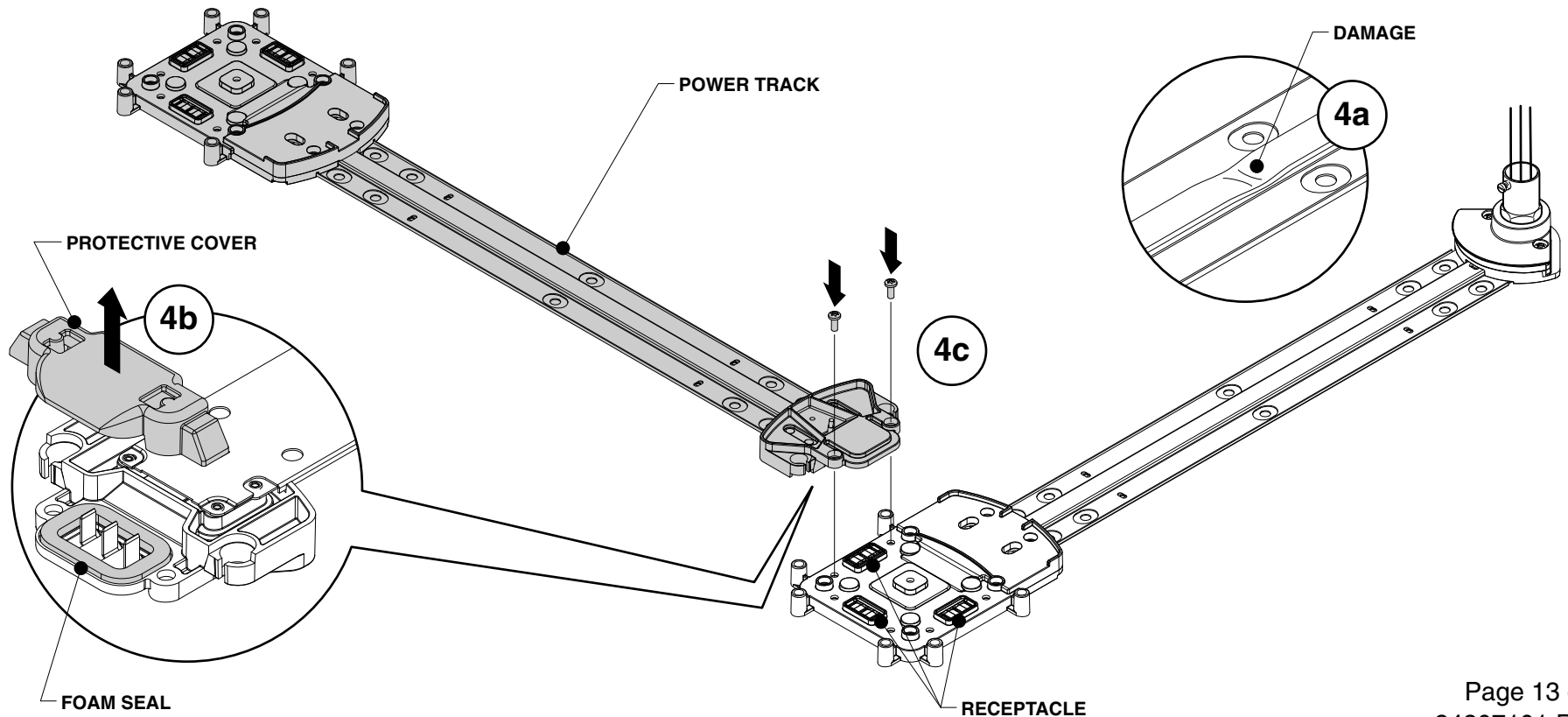
## POWER TRACK INSTALLATION

**4.** Inspect the power track for damage. If it is damaged, the power track must be replaced (4a). Do not remove protective cover until you are ready to make the connection. After removing the protective cover, make sure the foam seal and terminals are in place and not damaged (4b). Install the two (2) M4 screws with a T20 torx bit to 7-10 in-lbs torque (4c).

**NOTE:** The power track can be installed in any of the three (3) available receptacles.

**NOTE:** Do not anchor tracks to the floor until the entire layout has been placed on the floor, all door modules installed, all fillers attached and open receptacles for the NEMA monument have been taped off.

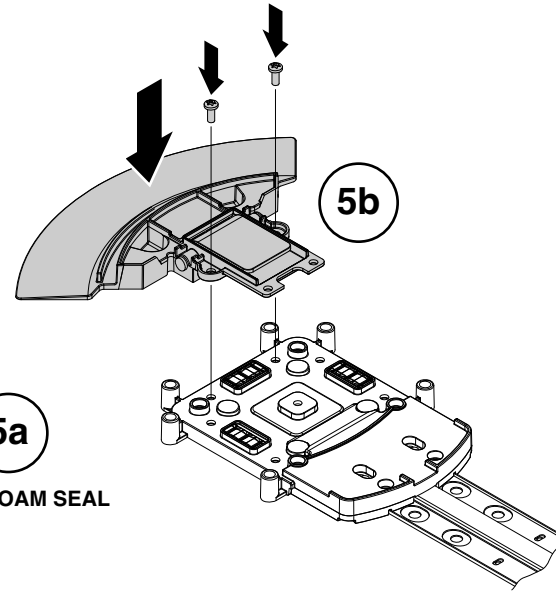
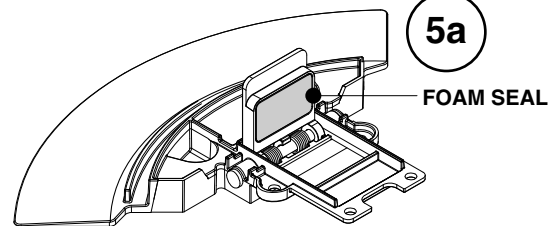
**TIP:** Use chalk line or laser to establish squareness to a wall and layout of the entire system.



## SINGLE DOOR MODULE INSTALLATION

**5.** Make sure the foam seal is in place and not damaged (5a).  
Install the two (2) M4 screws with a T20 torx bit to 7-10 in-lbs torque (5b).

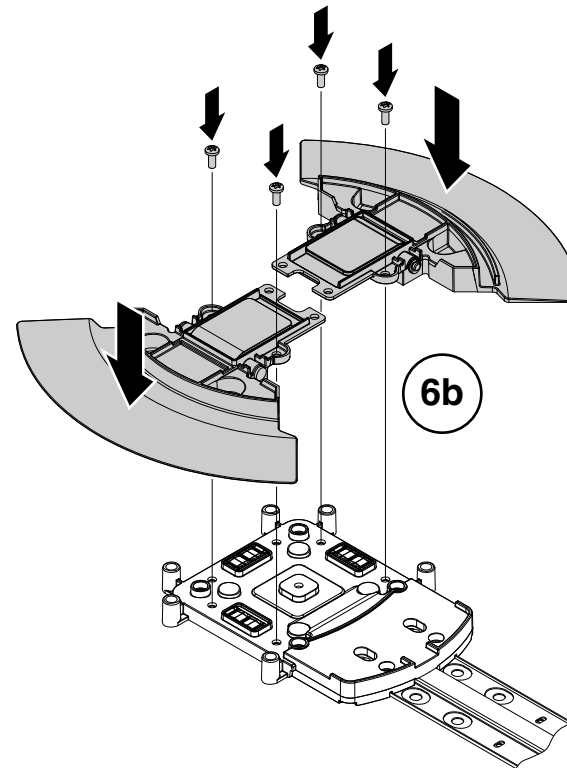
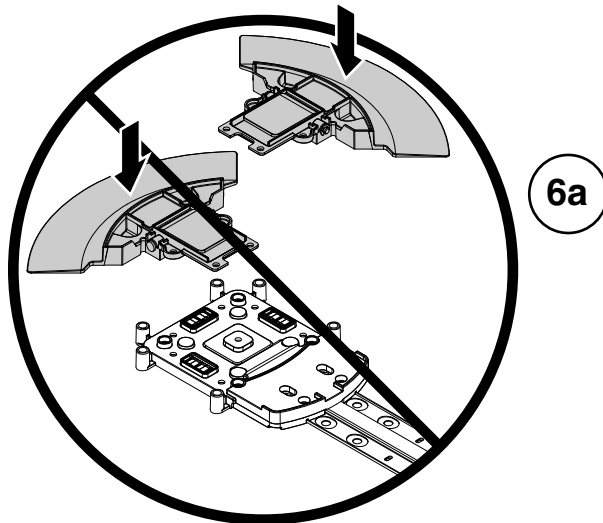
**NOTE:** The single door module can be installed in any of the three (3) available receptacles.



## DOUBLE DOOR MODULE INSTALLATION

**6.** Make sure the foam seals are in place and not damaged (6a).  
Install the four (4) M4 screws with a T20 torx bit to 7-10 in-lbs torque (6b).

**NOTE:** The double door module must be installed directly across from each other. The doors cannot be installed 90 degrees to each other.

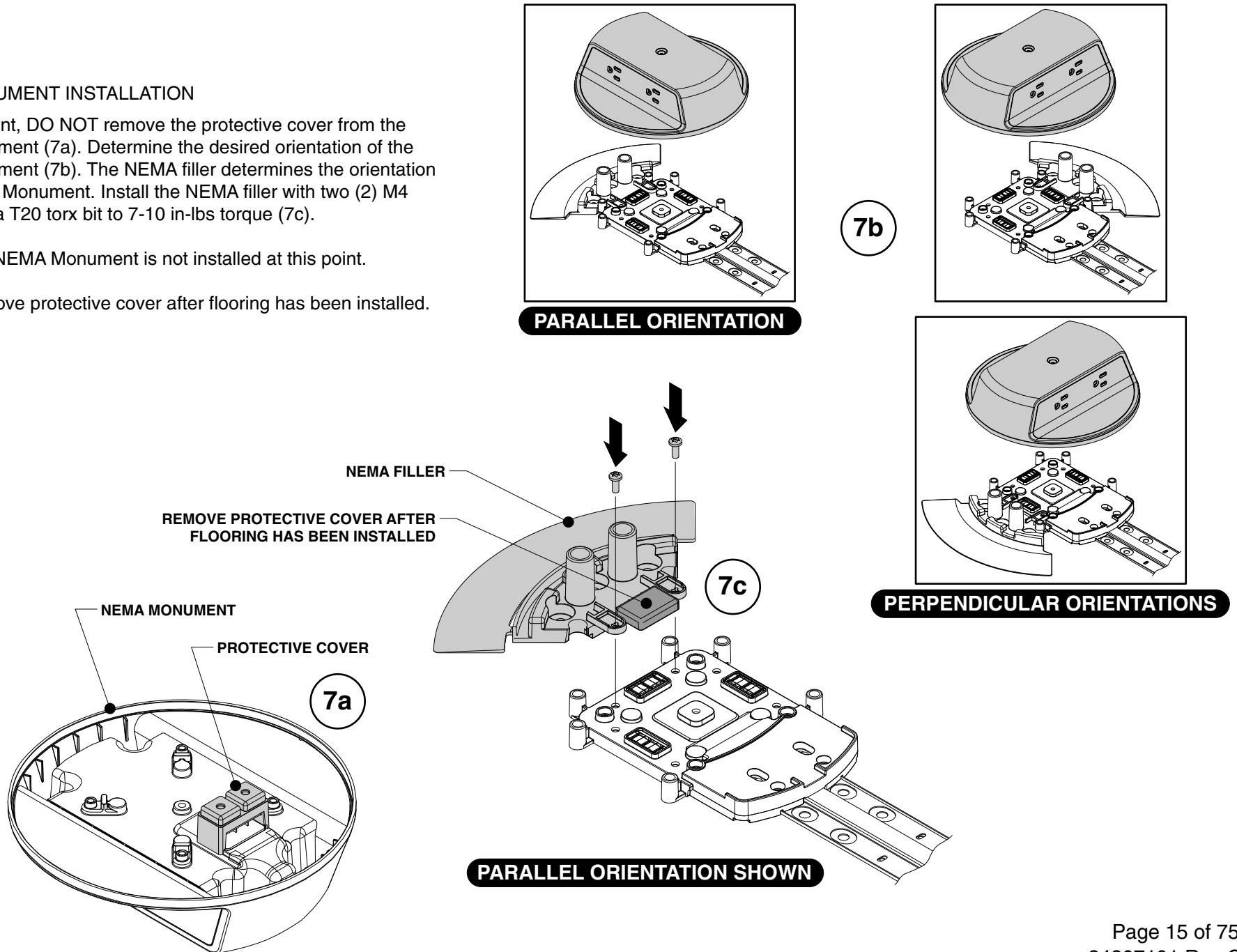


## NEMA MONUMENT INSTALLATION

**7.** At this point, DO NOT remove the protective cover from the NEMA Monument (7a). Determine the desired orientation of the NEMA Monument (7b). The NEMA filler determines the orientation of the NEMA Monument. Install the NEMA filler with two (2) M4 screws with a T20 torx bit to 7-10 in-lbs torque (7c).

**NOTE:** The NEMA Monument is not installed at this point.

**NOTE:** Remove protective cover after flooring has been installed.



## BLANK FILLER INSTALLATION

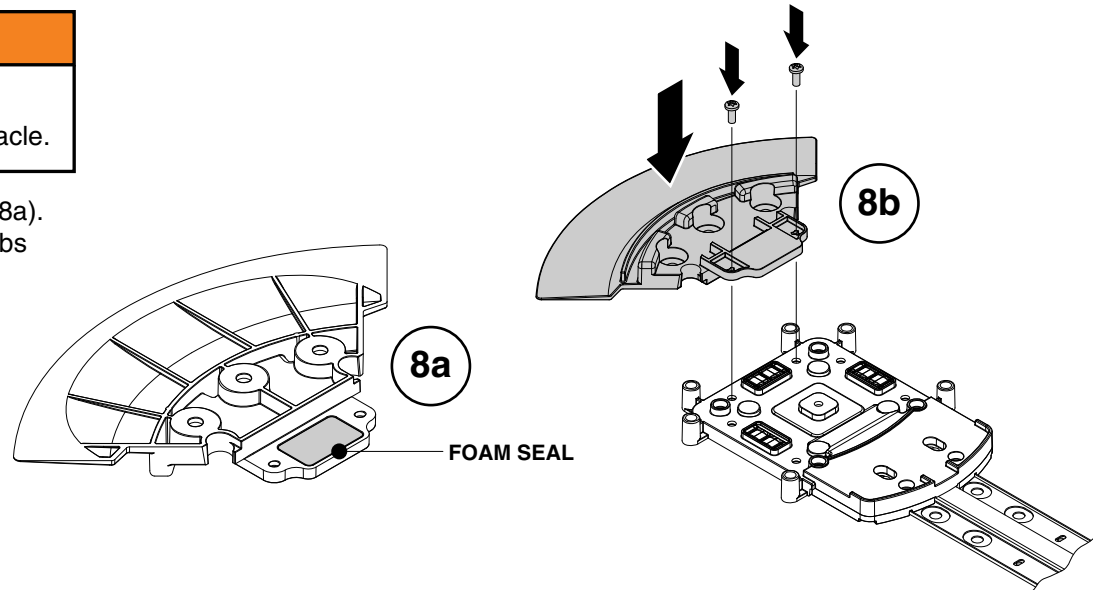
### ⚠ WARNING



#### Risk of Fire or Electric Shock

- Install this blank filler onto any unused receptacle.

**8.** Make sure the foam seal is in place and not damaged (8a). Install the two (2) M4 screws with a T20 torx bit to 7-10 in-lbs torque (8b).



## SYSTEM INSTALLATION

**9.**

- At this point, the system should have all the power tracks, door fillers, NEMA fillers and blank fillers installed.

### ⚠ WARNING



#### Risk of Fire or Electric Shock

- Ensure every receptacle in the system has a filler or power track installed in it.

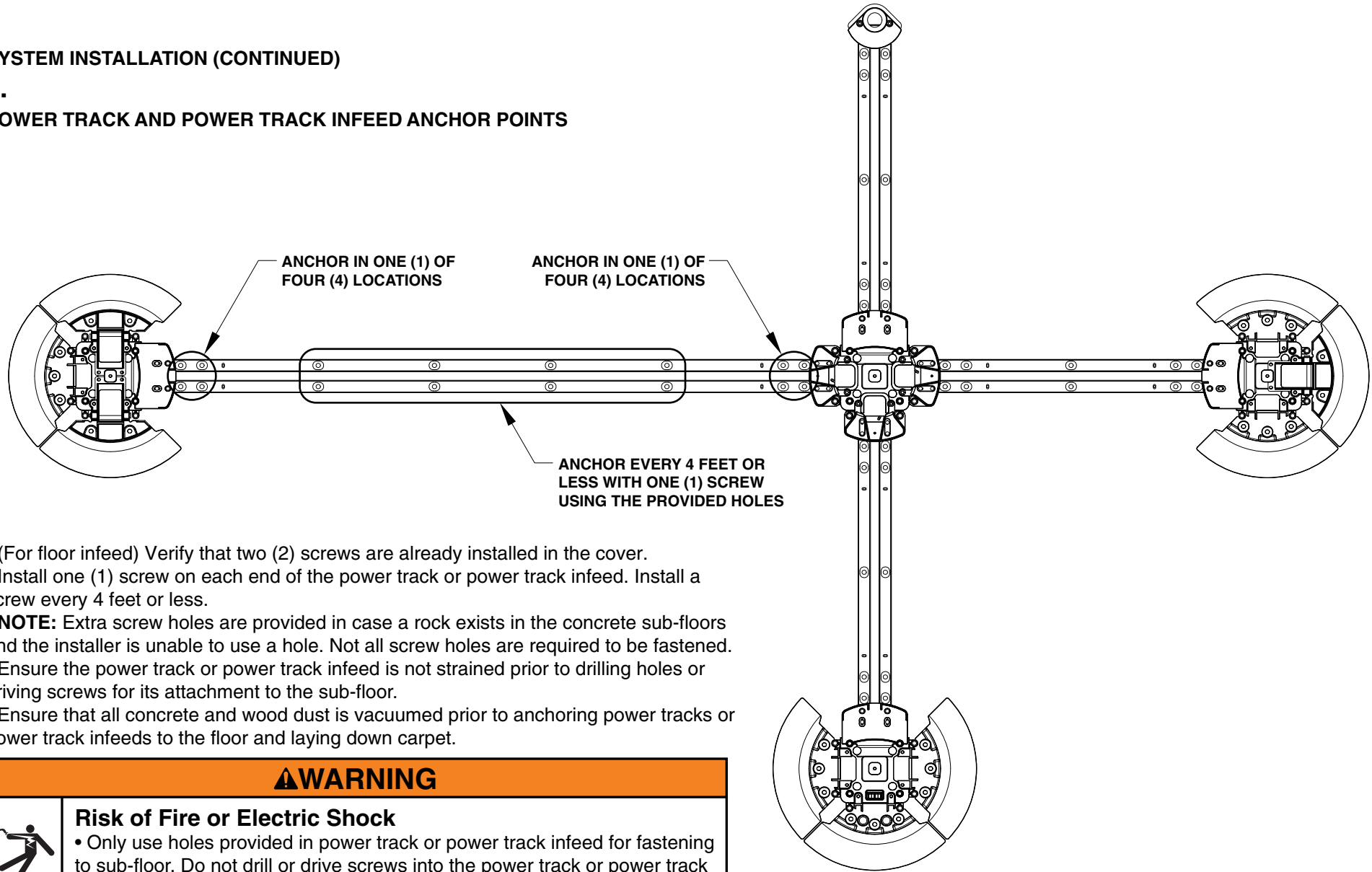
• For receptacles that have a NEMA filler and are missing the protective cover, place a piece of masking tape over the receptacle if the dust cover is missing to keep dust out of the connector during the floor anchoring process.

• The next step is to anchor the system to the sub-floor. See page 20 for hardware recommendations for mounting to concrete and wood sub-floors.

## SYSTEM INSTALLATION (CONTINUED)

### 9.

#### POWER TRACK AND POWER TRACK INFEEED ANCHOR POINTS



- (For floor infeed) Verify that two (2) screws are already installed in the cover.
- Install one (1) screw on each end of the power track or power track infeed. Install a screw every 4 feet or less.
- **NOTE:** Extra screw holes are provided in case a rock exists in the concrete sub-floors and the installer is unable to use a hole. Not all screw holes are required to be fastened.
- Ensure the power track or power track infeed is not strained prior to drilling holes or driving screws for its attachment to the sub-floor.
- Ensure that all concrete and wood dust is vacuumed prior to anchoring power tracks or power track infeeds to the floor and laying down carpet.

### ⚠ WARNING



#### Risk of Fire or Electric Shock

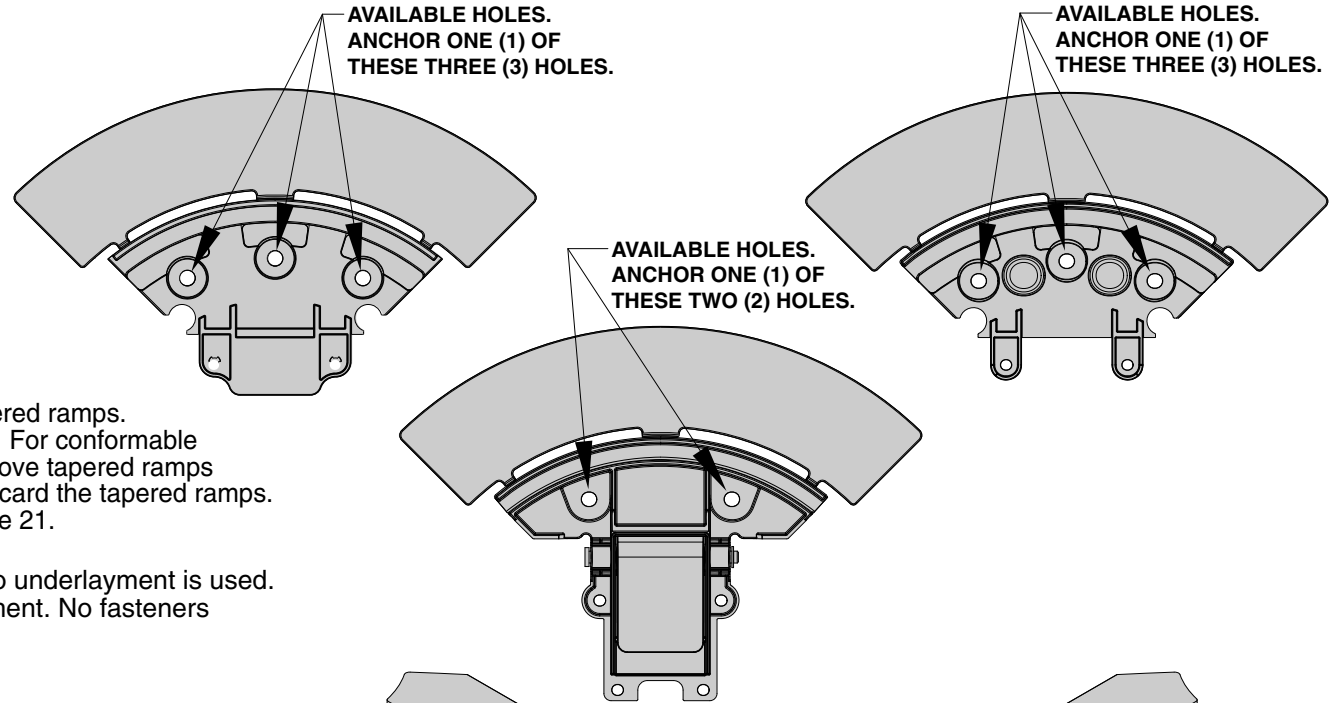
- Only use holes provided in power track or power track infeed for fastening to sub-floor. Do not drill or drive screws into the power track or power track infeed in any fashion. Doing so may result in electric shock.

## SYSTEM INSTALLATION (CONTINUED)

### 9. FILLER USAGE AND ANCHOR POINTS

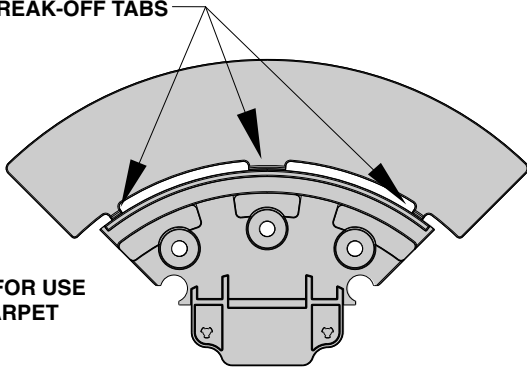
- Each filler must be anchored to the sub-floor using one (1) of the available holes (shown) in each module.
- All fillers have break-off tabs for removing the tapered ramps. Tapered ramps are used for carpeted installations. For conformable floor covering installations with underlayment, remove tapered ramps from module by cutting the break-off tabs, then discard the tapered ramps. See conformable floor covering installation on page 21.

- 10.** Place the ramps onto the metal raceway if no underlayment is used. Place track infills onto raceway if using underlayment. No fasteners required for either type.

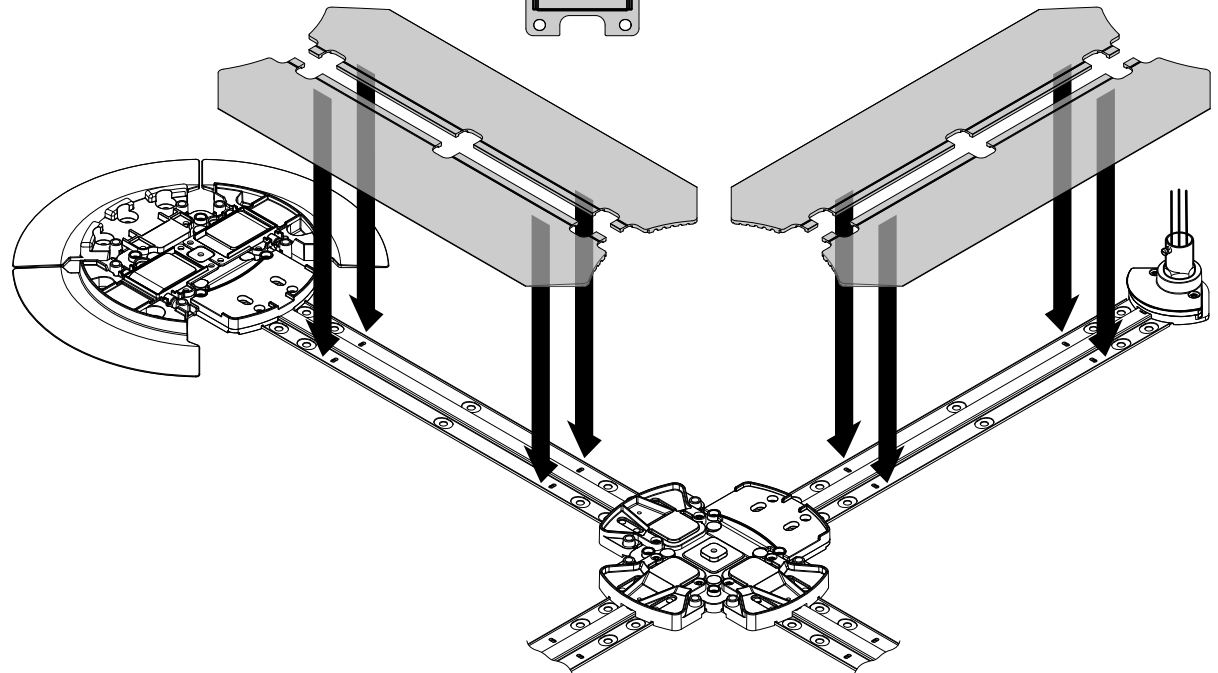
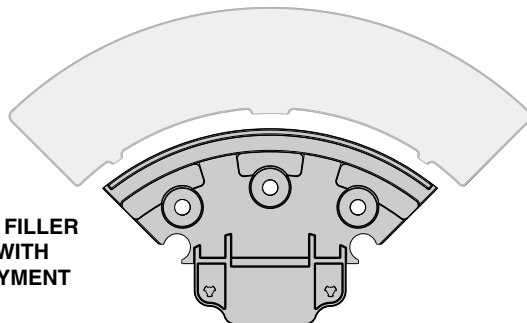


BREAK-OFF TABS

FILLER FOR USE WITH CARPET



MODIFIED FILLER FOR USE WITH UNDERLAYMENT



(TRACK AND RAMP INSTALLATION SHOWN FOR USE WITH CARPET)



## FLOORING WITH UNDERLAYMENT INSTALLATION

### SURFACE PREPARATION

**NOTE:** All concrete floors must be structurally sound, dry, stable and meet the acceptability requirements of the ASTM F710 standards. In addition to these standards follow the floor preparation steps on page 2.

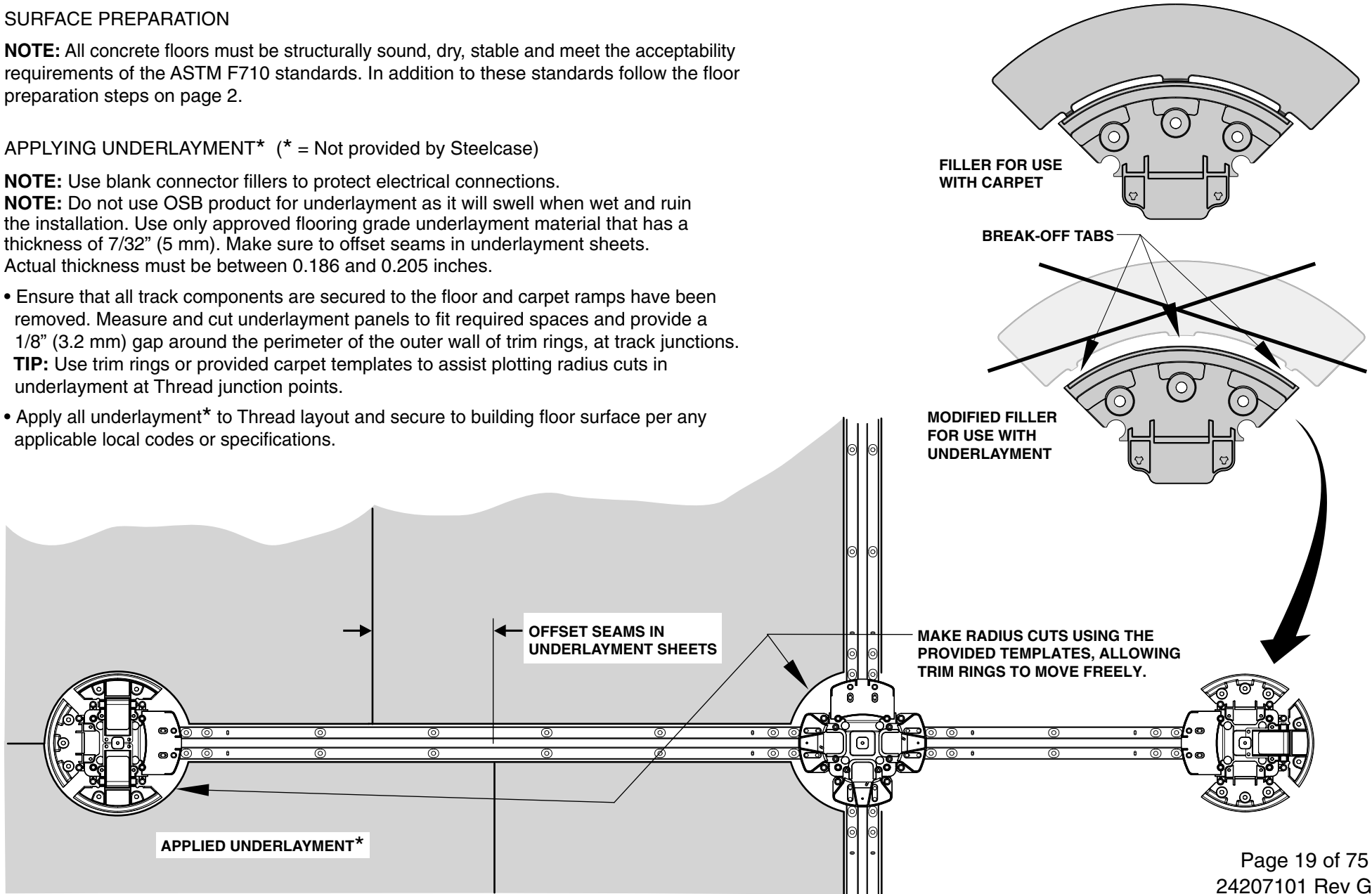
### APPLYING UNDERLAYMENT\* (\* = Not provided by Steelcase)

**NOTE:** Use blank connector fillers to protect electrical connections.

**NOTE:** Do not use OSB product for underlayment as it will swell when wet and ruin the installation. Use only approved flooring grade underlayment material that has a thickness of 7/32" (5 mm). Make sure to offset seams in underlayment sheets. Actual thickness must be between 0.186 and 0.205 inches.

- Ensure that all track components are secured to the floor and carpet ramps have been removed. Measure and cut underlayment panels to fit required spaces and provide a 1/8" (3.2 mm) gap around the perimeter of the outer wall of trim rings, at track junctions.
- TIP:** Use trim rings or provided carpet templates to assist plotting radius cuts in underlayment at Thread junction points.
- Apply all underlayment\* to Thread layout and secure to building floor surface per any applicable local codes or specifications.

**NOTE:** Remove tapered ramps from module by cutting the break-off tabs. Discard the tapered ramps.



Part #	Description	Screw Diameter	Drill Bit	Min. Screw Embedment	Drive	Recommended Hole Depth
	Tapcon	3/16"	5/32"	1"	1/4" Hex	1-1/4"
260368	Hilti HPS-1 1/4" x 1"	#8	1/4"	1"	#2 Phillips	1-1/4"

After building the designed layout, anchor the system to the sub-floor with the appropriate hardware.

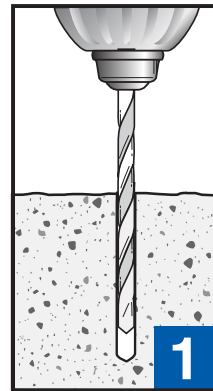
## RECOMMENDED ITEMS:

- CONCRETE SCREWS FOR CONCRETE SUB-FLOOR.
- #10 x 3/4" WOOD SCREWS FOR WOOD SUB-FLOOR. (HEAD HEIGHT MUST BE LESS THAN 0.149")

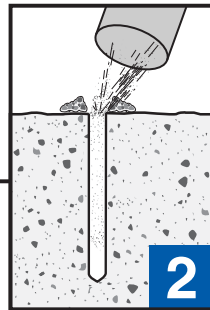
## Concrete Screw Installation

Read these instructions carefully. Failure to follow these instructions can result in serious personal injury.

### CONCRETE ANCHORS

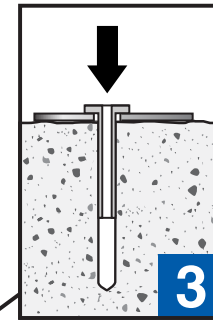


1. Drill using a hammer drill.

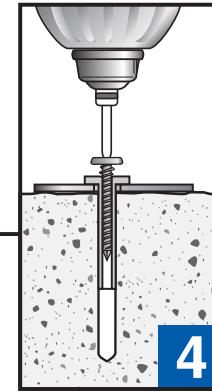


2. Clean hole with vacuum.

### HILTI

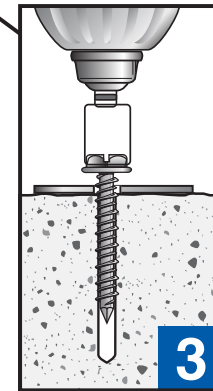


3. Install plastic insert into hole.



4. Install screw using a hammer drill with phillips bit until fully seated.

### TAPCON



3. Install screw using a hammer drill with nut driver or phillips bit until fully seated.

## ⚠ WARNING



### RISK OF FIRE OR ELECTRIC SHOCK

Before drilling holes to anchor Thread to building floor, verify floor does NOT contain hidden electrical wiring, structural cabling, steam lines, radiant heat systems, or other obstructions. Consult with the building's architect or Engineer of Record to plan accordingly.

## FLOORING WITH UNDERLAYMENT INSTALLATION (Continued)

### APPLY INFILL STRIPS

- With all underlayment secured, apply the provided infill strips to each side channel in all the Thread power tracks.

**NOTE:** Do not apply infill strips over screw heads in power tracks. Cut the infill material and leave a small gap where any screw heads are located.

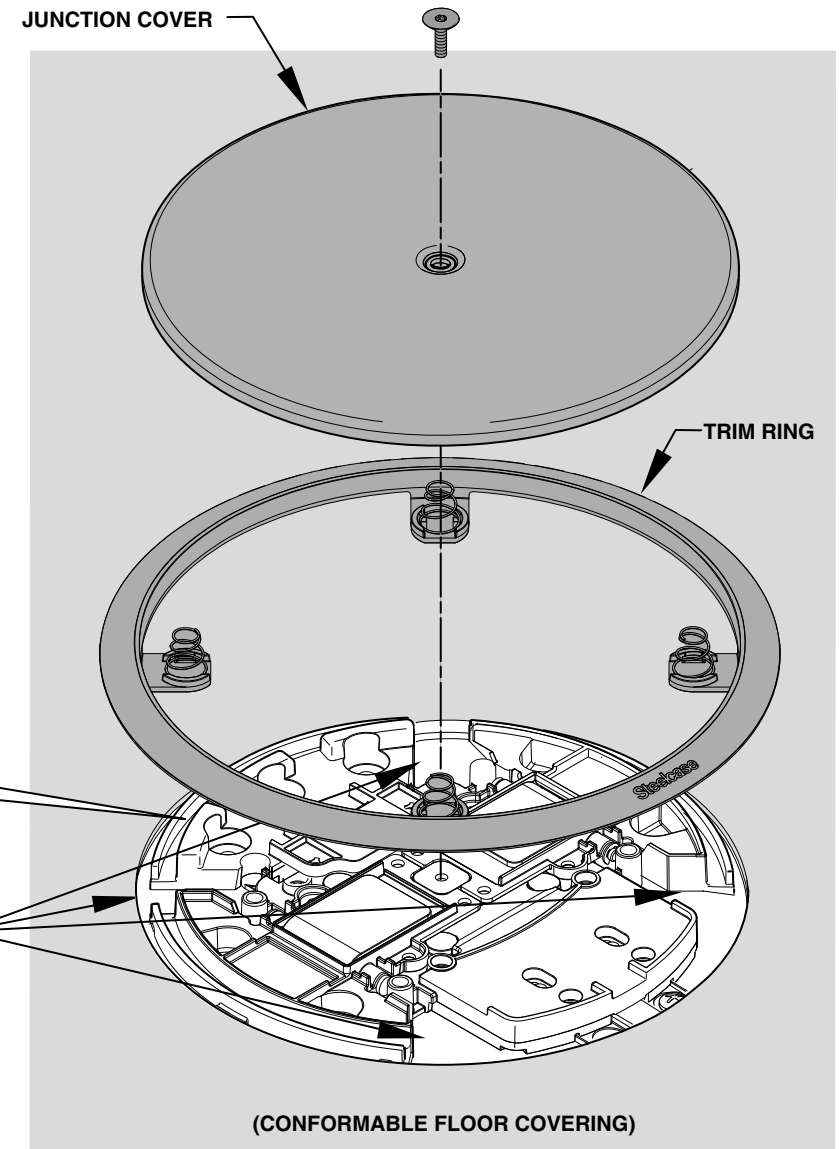
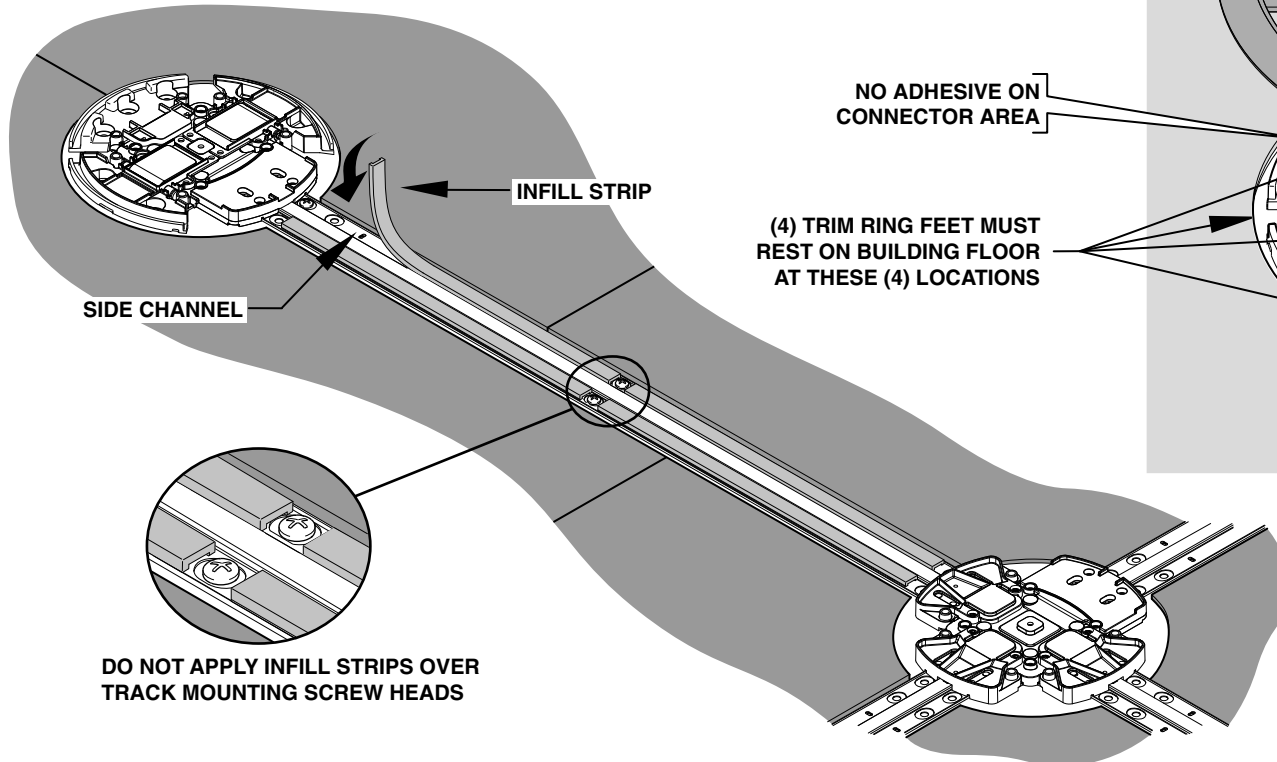
### APPLY CONFORMABLE FLOOR COVERING

- With all underlayment secured, and infill strips applied to all power tracks, install the conformable floor covering per the manufacturer's specifications. Make sure to use care in cutting the flooring to match the radius cuts around the Thread junction points.

**TIP:** Use trim rings or the provided templates as a guide to cut flooring around junction points to appropriate size.

### APPLY TRIM RINGS AND COVERS

- After completion of the flooring installation, install all trim rings to the Thread junction points.
- Install all junction covers and secure with provided screws.

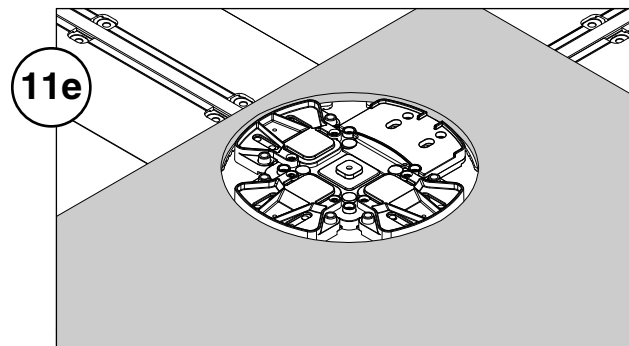
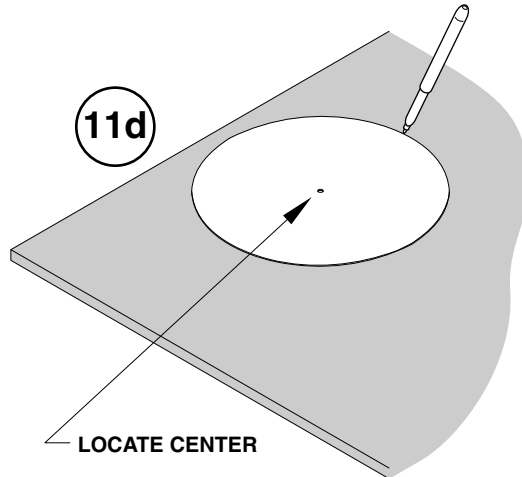
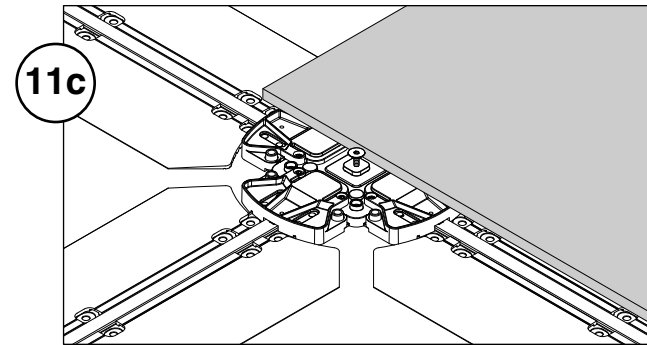
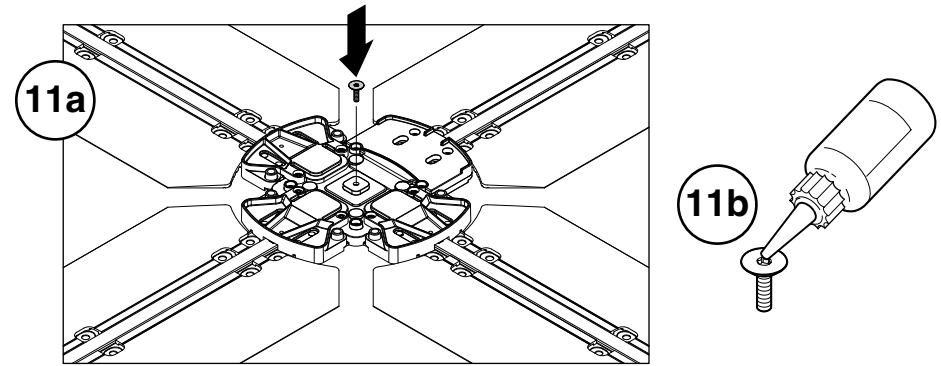


## CARPET INSTALLATION

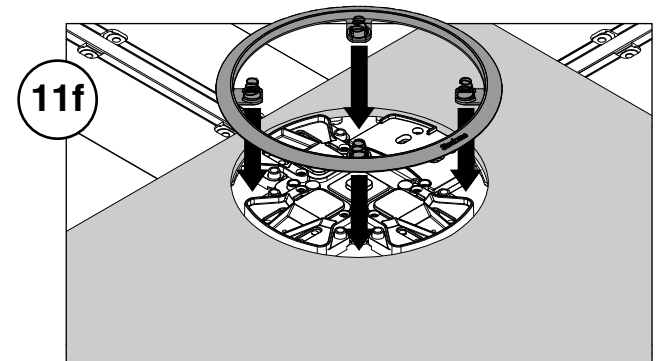
### 11.

- In order to lay the carpet over the connector, temporarily remove the NEMA filler. This is required to get an accurate mark transferred to the carpet.
  - Install a short center screw (provided with non-NEMA connectors) into center of connector (11a).
  - Fill the center of the screw with marking chalk (11b).
  - Dry fit the carpet squares or rolled carpet across the first junction (11c).
  - Lay the carpet over the screw. Press down on the carpet, over the screw, to transfer the marking chalk (11c).
- Vacuum all marking chalk & remove the screw.
- Re-install all NEMA fillers that were temporarily removed.

- Using the (provided) round template, use the hole in the center of the template to locate the mark. Mark the carpet around the outside of the template and cut (11d).
  - Place the carpet on a surface that cannot be cut with a utility knife. In the case of carpet squares, arrange the carpet squares as they will lay across the junction.
  - Dry fit the carpet onto the junction again (11e).
  - Apply adhesive to floor where carpet lays. This includes the power track, power track infeed, ramps, and sub-floor. See page 19.
  - Place trim ring into the newly cut carpet hole and align the four (4) tabs into the corresponding wells in the junction (11f).
- (Do this after the adhesive for carpet has been installed.)



CUT PERIMETER AND LAY IN PLACE

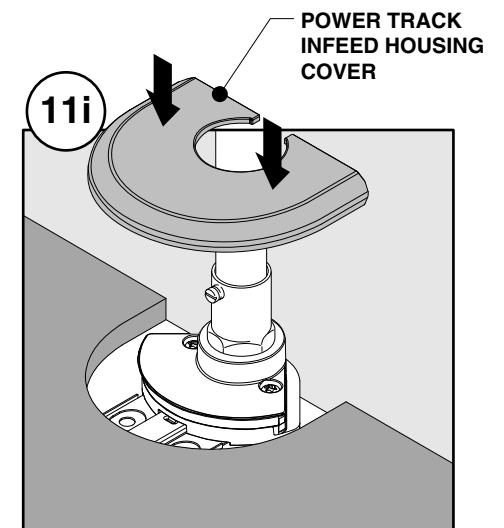
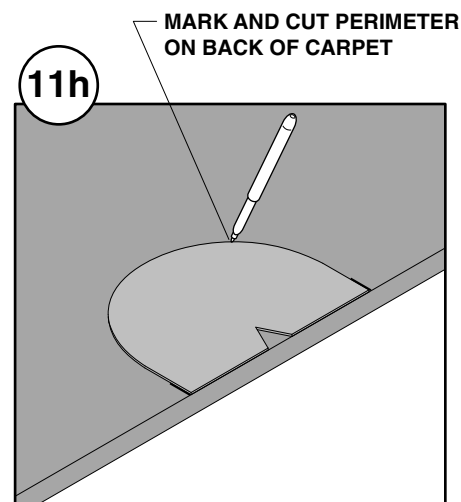
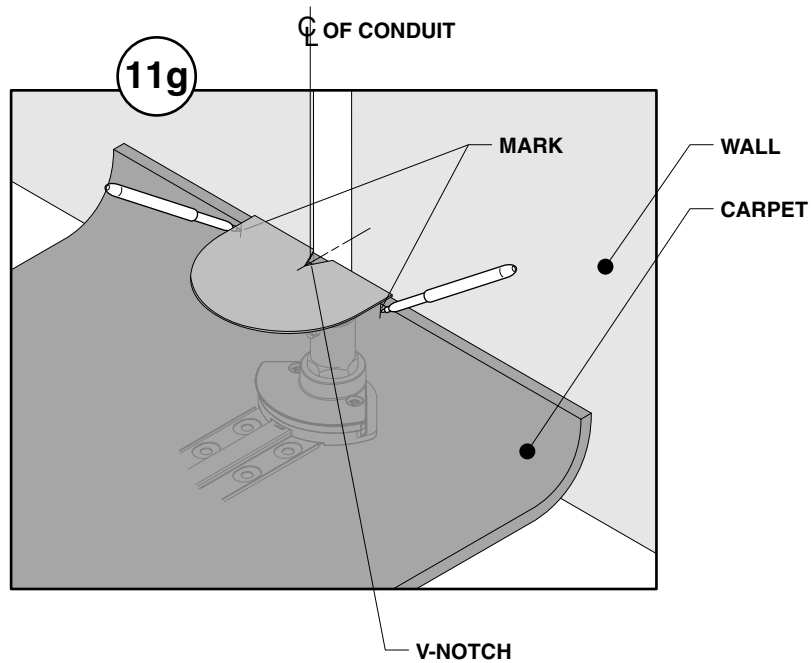


INSTALL TRIM RING IN PLACE

## CARPET INSTALLATION (CONTINUED)

### 11.

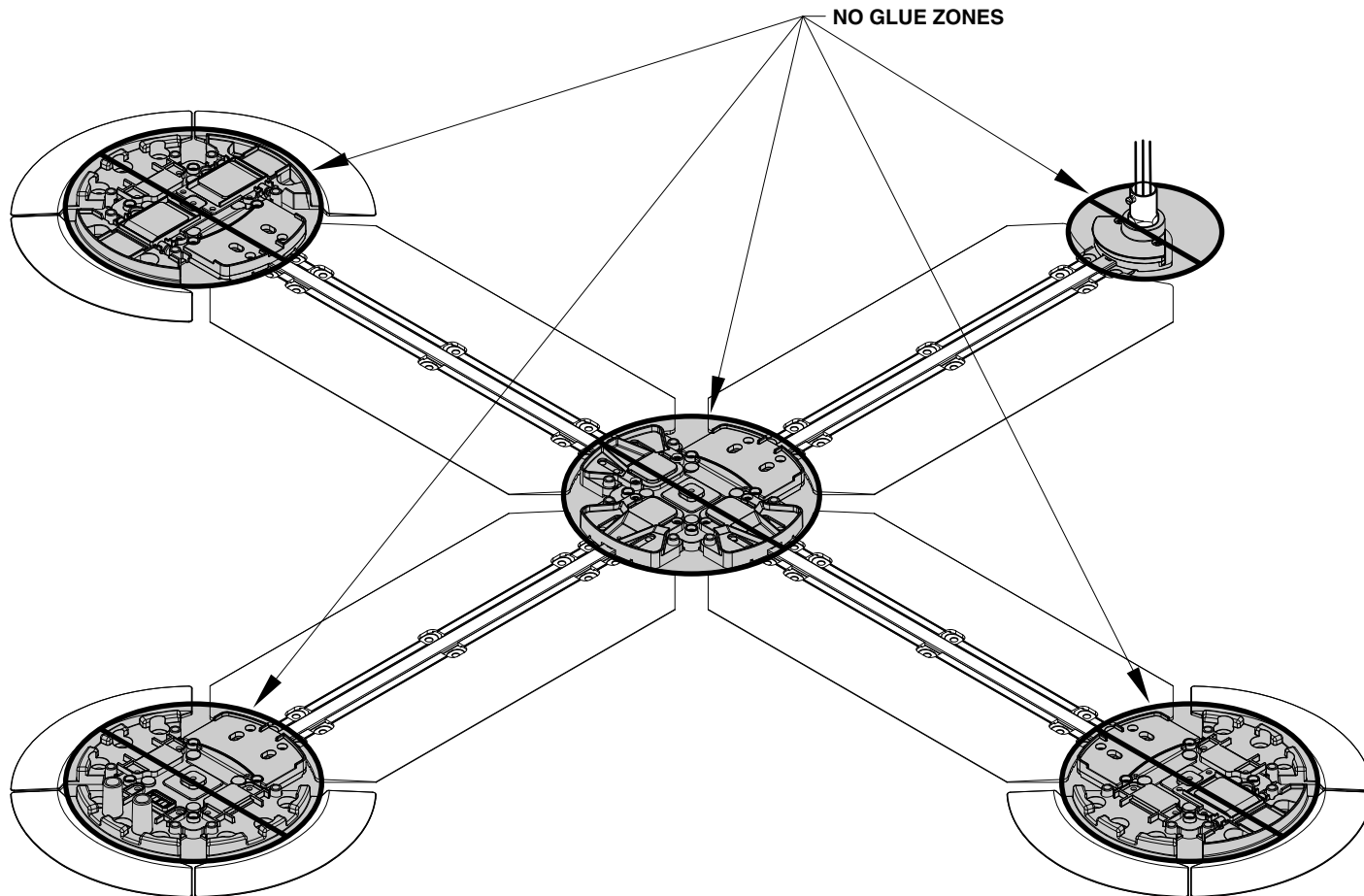
- With the carpet layed over the conduit, align the v-notch with the conduit and mark each edge of template (11g).
- Pull the carpet back, mark around the perimeter of the horseshoe template, move to a surface that can be used for cutting with a utility knife, and cut out the horseshoe shaped mark in the carpet. Replace the carpet back over the housing (11h).
- Push the cover down onto the housing pilot. A snapping sound will be apparent. Keep pushing the cover down until the cover is tight against the carpet (11i).



## CARPET INSTALLATION (CONTINUED)

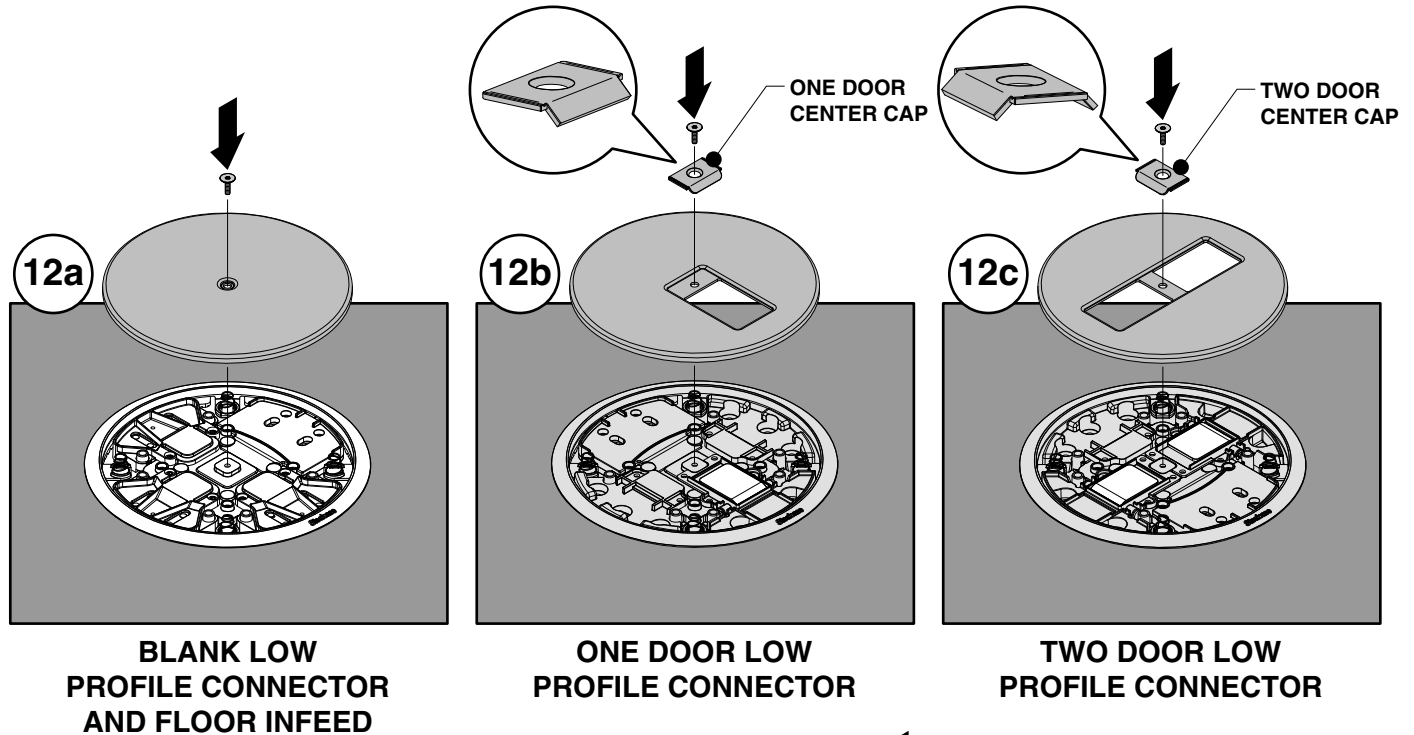
### 11.

- Proceed to finish cutouts for all connectors.
- Apply adhesive across the entire floor including power track, power track infeed and ramps.
- **DO NOT** apply adhesive on the receptacle assemblies and modules.



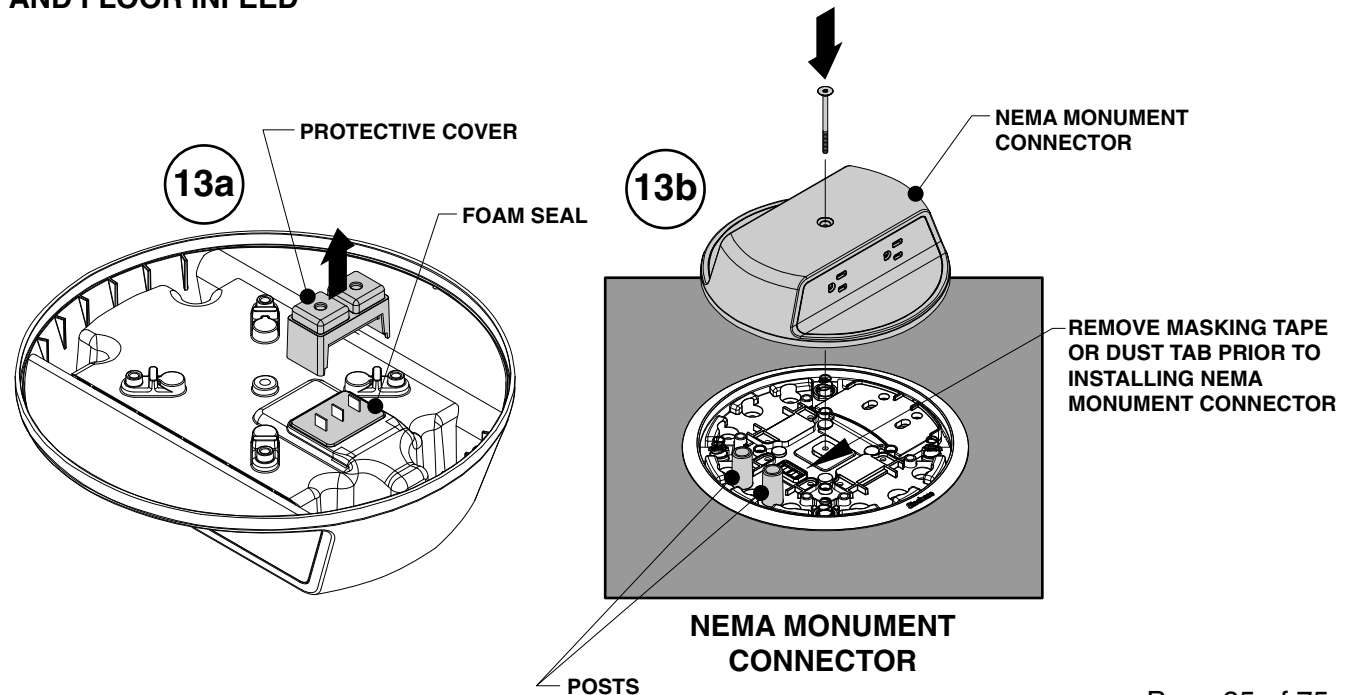
## CONNECTOR COVER INSTALLATION 12.

- After the outer trim ring has been installed, select the appropriate cover for each junction (12a, 12b or 12c).
- For the single door (12b) and double door (12c) connector, select the appropriate center cap.
- Align the cutouts in the cover with the doors in the connector. Place the appropriate center cap on the cover.
- Use the 3/4" long center screw (supplied) to fasten the cover to the connector.
- Tighten the center screw to 7-10 in-lbs torque.



## NEMA MONUMENT INSTALLATION 13.

- DO NOT remove the protective cover until you are ready to make the connection. After removing the protective cover, make sure the foam seal and terminals are in place and not damaged (13a).
- Remove the masking tape or dust tab previously placed over the receptacle (13b).
- After the trim ring has been installed in the cutout in the carpet, make sure the NEMA monument is oriented correctly on the two posts sticking up.
- Use the 1-1/2" long center screw (supplied) to fasten the NEMA monument to the connector.
- Tighten the center screw to 7-10 in-lbs torque.

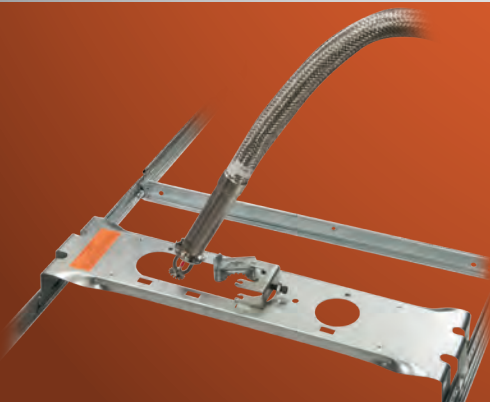


# SUBMITTAL PACKAGE

**TRUST THE ORIGINAL.™**



**SUPERFLEX™**



**FLEXHEAD®**  
INDUSTRIES 

A PART OF **atkore**  
INTERNATIONAL



# We invented the concept of flexible fire protection™

## The FlexHead® Advantage

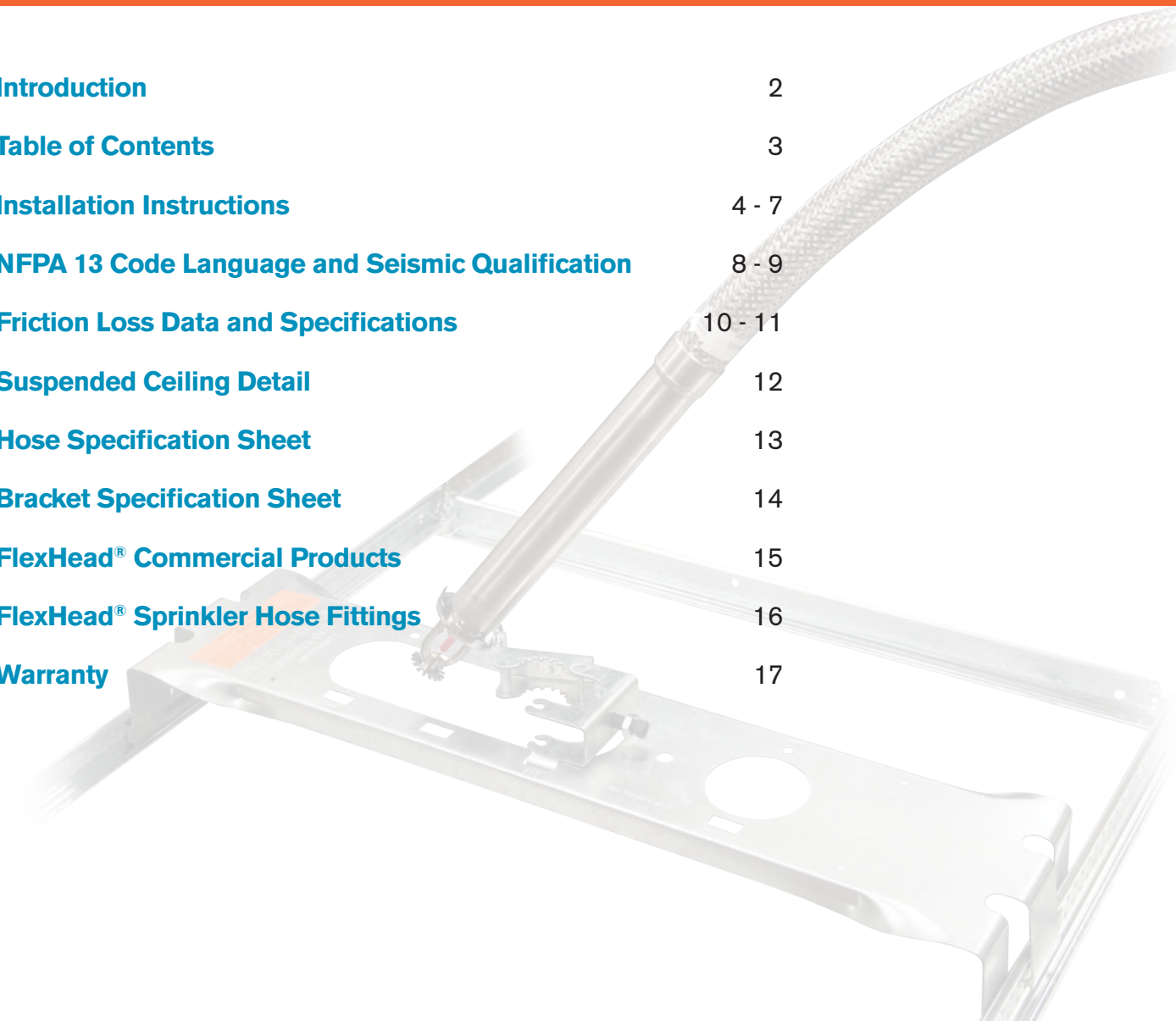
### FLEXHEAD® QUALITY

- **Best corrosion resistance**  
Made from 100% 304 stainless steel
- **Excellent friction loss values**  
One-inch true-bore ID reducing the need to upsize mains and branch lines, 1¼" available
- **Pressure surge protection**  
Fully braided connection improves pressure capability and prevents hose damage
- **Highest maximum working pressure**  
Rated up to 300 psig
- **No o-rings or gaskets**  
Welded connections reduce potential leak points at the inlet and outlet fitting
- **Tightest thread tolerances**  
Outlet fitting threads are machined from solid bar stock reducing potential leaks at the sprinkler head fit-up
- **Extra stability**  
Bracket has a full 6-inch base to stabilize the sprinkler head during installation, pressurization or activation

### FLEXHEAD® FEATURES

- Is **seismically qualified** for use, eliminating the need for an oversized ring around the sprinkler head in seismic areas
- Has the same product design that is **dual listed** by both UL and FM
- Can be **produced domestically** to meet all your project requirements
- Has **serial identification** with complete audit tracking of finished goods
- Has a **comprehensive limited warranty** backed by an A++ insurance company
- Offers a variety of flexible fire sprinkler connections, suspended ceilings, gypsum board ceilings, institutional applications, cleanroom and duct applications
- Offers 1.25" FlexHead® hose for superior friction loss numbers

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*Whether your application is commercial, industrial, clean room, or institutional, FlexHead® flexible sprinkler systems can save you time and money by offering reliable, highly efficient, seismically qualified, and environmentally responsible products.*

U.S. and international patents pending: #6,123,154, #6,119,784, #6,752,218, #7,032,680, #6,488,097.

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## INSTALLATION INSTRUCTIONS – MPT-24-BKT1

### Installation of FlexHead Commercial Ceiling Flexible Sprinkler Drop System

Recommend the use of proper PPE for installation. MPT-24-BKT1 is approved for use with the standard FlexHead® and SuperFlex™ Flexible Sprinkler Hose in accordance to NFPA 13, 13D, & 13R for use in wet and dry sprinkler system. The Standard & SuperFlex™ Flexible sprinkler hoses are UL approved for Limited flexibility and are intended for direct sprinkler connection.



**FlexHead® Standard Tall**  
2024T, 2036T, 2048T, 2060T, 2072T



**FlexHead® Standard Tall Elbow**  
2024ET, 2036ET, 2048ET, 2060ET, 2072ET



**SuperFlex™**  
2036SF, 2048SF, 2072SF

The MPT bracket is set for 24" center of tile installation.  
(See back side for additional installation configurations)

\*Intended for use on ASTM C 635 intermediate or heavy duty ceilings systems installed in accordance to ASTM C 636.



### T Bar Ceiling Grid Installation

The MPT bracket is designed for use on ceiling grids conforming to ASTM C 635\*.

- Locate the center of the ceiling tile marking, align the offset screw with that marking for true center of tile installation. Insert one bracket leg at a time, applying a downward pressure on the bracket leg and T-Bar. Screw the self tapping screw using a #2 square head driver. Place the second leg on the T-Bar and repeat process. **(Fig. 1)**



### FlexHead Flexible Hose Installation

- Apply Teflon® tape and pipe sealant to the 1" NPT thread. Install into branch outlet. Any direction is acceptable, ensure the hose is allowed at least one bend per installation to allow for seismic movement. (See Friction Loss Chart on page 3 for details.)
- Tighten hose using the pipe drop section, never apply a wrench to the braided hose for installation. **(Fig. 2)**



**Do not wrench on braided hose**

## Secure the FlexHead Sprinkler Drop to MPT Bracket

- A. Maneuver the flexible sprinkler drop from the branch to the MPT bracket. Review that the hose length, number of bends, and bend radius are applicable for the installation per NFPA guidelines. (See Corresponding hose technical data sheet for installation information.)
- B. The MPT bracket has an open hub for ease of installation. Open the hinge apparatus by turning the locking shaft ¼ turn. Slide the flexible hose drop into the hub. Ensure the drop is vertical, and the SS Flexible® hose is not applying a substantial moment on the bracket causing sprinkler misalignment. Latch the hinge door close and adjust the sprinkler drop for desired ceiling height. Tightening the set screw till hand tight plus two full revolutions, (130 in-lbs). **(Fig. 3a and 3b)**

- C. Install desired sprinkler head, per the manufacturer's installation instructions.



## Ceiling Tile Installation

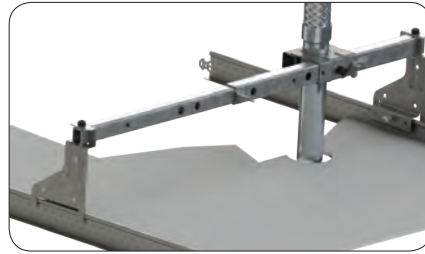
- A. The flexible sprinkler drop system with MPT Bracket is able to be installed prior to the ceiling tile installation, preventing the need for sprinkler contractor tile adjustment.
- B. For ease of tile installation, cut the largest sprinkler hole recommended by the manufacture. The largest hole that is still covered by the sprinkler escutcheon allows for an easier install.
- C. Angle the tile at 45 degrees and push the tile through the hole and up above the ceiling T-bar, maneuver the tile and allow it to drop in the proper location. **(Fig. 4)**



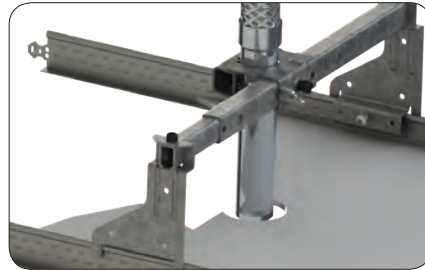
## Installation Complete



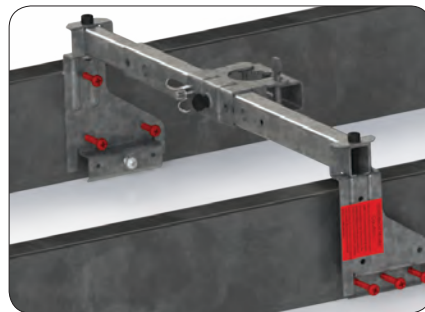
## Installation Configuration



**24" Tile – 24/4  
Quarter Mark  
Position**



**16" Tile – 16/2  
Center Position**



**16" Metal Stud  
(Web Size > 5")  
Center Position\***



**14 ½" Wood Stud  
Center Position\***

U.S. and International Patent Pending: #6,123,154, #6,119,784, #6,752,218, #7,032,680, #6,488,097

\*FM Approved, Installation has not been evaluated by UL

20XXET with MPT-24BKT1 bracket has not been evaluated by UL.

## INSTALLATION INSTRUCTIONS – MPO & ADO BRACKET

### Installation of FlexHead® Commercial Ceiling Flexible Sprinkler Drop System

For use with FlexHead® hoses; 2024T, 2036T, 2048T, 2060T, 2072T 2024ET, 2036ET, 2048ET, 2060ET, 2072ET



### T-Bar Ceiling Grid Installation

The bracket is designed for use on ceiling grids conforming to ASTM C635.

1. Locate the center of the ceiling tile marking, then align the screw hole for true center of tile installation.
2. Clip the bracket on the T-Bar Ceiling Grid.
3. Center of the leg section must be on the outside of the T-Bar (**Fig. 1**).
4. Secure each bracket leg to the T-Bar with #2 Head self tapping screw.



### FlexHead® Flexible Hose Installation

1. Apply Teflon® tape and pipe sealant to the 1" NPT thread. Install into branch outlet. Any direction is acceptable, ensure the hose is allowed at least one bend per installation to allow for seismic movement.
2. Tighten hose using the pipe drop section, never apply a wrench to the braided hose for installation.



*Do not wrench on braided hose*

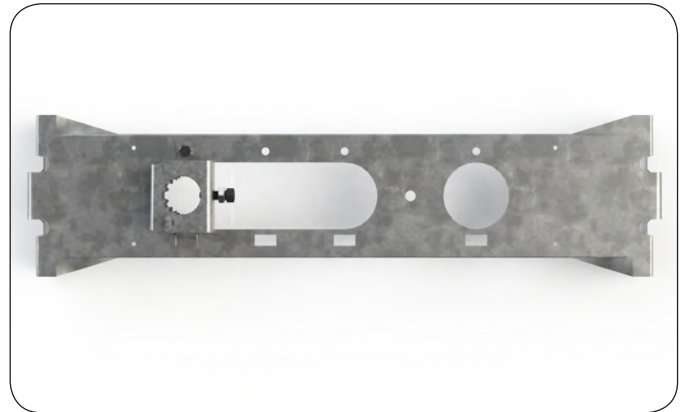
## Secure the FlexHead® Sprinkler Drop to the Bracket

1. Maneuver the flexible sprinkler drop from the branch to the bracket. Review that the hose length, number of bends, and bend radius are applicable for the installation per NFPA guidelines. (See corresponding hose technical data sheet for installation information on pages 10-11.)
2. The bracket has an open hub for ease of installation. Open the hinge apparatus by turning the locking shaft ¼ turn. Slide the flexible hose into the hub. Ensure the drop is vertical and the SS Flexible® hose is not applying a substantial moment on the bracket, causing sprinkler misalignment. Latch the hinge door close and adjust the sprinkler drop for desired ceiling height. Tightening the set screw till hand tight plus 1 full revolution, (100 in-lbs).
3. Install desired sprinkler head per the manufacturer's installation instructions.

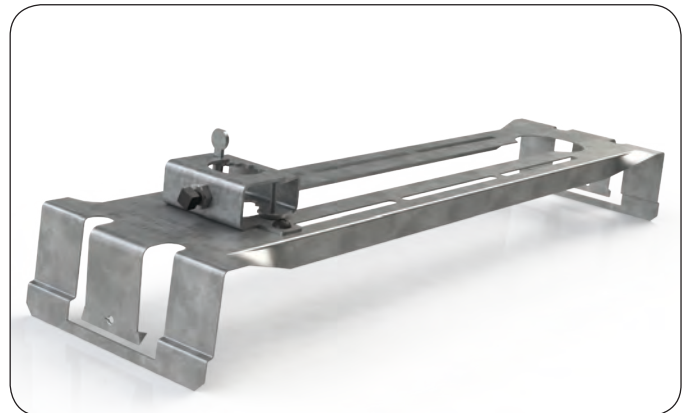


## Bracket Adjustment for Multiple Positions

1. **MPO Hub Adjustment** - Remove the nut and screw on the hub assembly. Slide out the tab and move to desired position. Insert tab into square opening at desired position and install screw from below. Install nut and tighten to hand tight plus one turn.



2. **ADO Hub Adjustment** - Loosen screw and nut on each side of the hub, do not remove. Slide the hub to the desired position and tighten screw on each side. Tighten the nut to hand tight plus one turn.



U.S. and International Patent Pending: #6,123,154, #6,119,784, #6,752,218, #7,032,680, #6,488,097

## NFPA 13 CODE LANGUAGE & SEISMIC QUALIFICATION

### NFPA 13 STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS 2016 EDITION

9.2.1.3.3 Flexible® Sprinkler Hose Fittings.

9.2.1.3.3.1 Listed flexible sprinkler hose fittings and their anchoring components intended for use in installations connecting the sprinkler system piping to sprinklers shall be installed in accordance with the requirements of the listing, including any installation instructions.

9.2.1.3.3.2 When installed and supported by suspended ceilings, the ceiling shall meet ASTM C 635, *Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings*, and shall be installed in accordance with ASTM C 636, *Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels*.

9.2.1.3.3.3 When flexible sprinkler hose fittings exceed 6 ft (1.83 m) in length and are supported by a suspended ceiling in accordance with 9.2.1.3.3.2, a hanger(s) attached to the structure shall be required to ensure that the maximum unsupported length does not exceed 6 ft. (1.83 m).

9.2.1.3.3.4 Where flexible sprinkler hose fittings are used to connect sprinklers to branch lines in suspended ceilings, a label limiting relocation of the sprinkler shall be provided on the anchoring component.

A. 9.2.1.3.3.3 The committee evaluation of flexible sprinkler hose fittings supported by suspended ceilings was based on a comparison of the weight of a 6 ft, 1 in (1.8 m) diameter Schedule 40 water-filled unsupported armover weighing approximately 13 lb (5.9 kg) to the weight of a 6 ft, 1 in. (1.8 m) diameter water-filled flexible hose fitting weighing approximately 9 lb (4.1 kg). The information provided to the committee showed that the maximum load shed to the suspended ceiling by the flexible hose fitting was approximately 6 lb (2.7 kg) and that a suspended ceiling meeting ASTM C 635, *Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems of Acoustical Tile and Lay-In Panel Ceilings*, and installed in accordance with ASTM C 636, *Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels*, can substantially support that load. In addition, the supporting material showed that the flexible hose connection can be attached to the suspended ceilings because it allow the necessary deflections under seismic conditions.

A.9.2.1.3.3.4 An example of language for the label is as follows:

**CAUTION:** DO NOT REMOVE THIS LABEL.

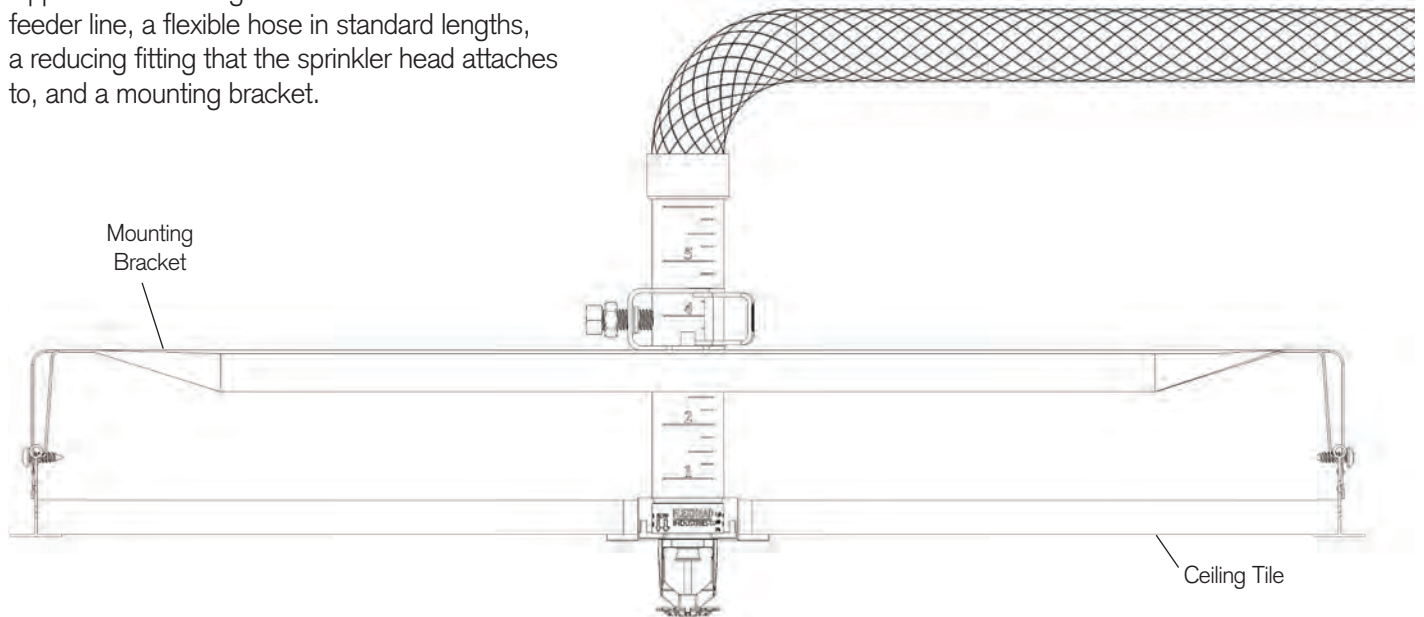
Relocation of this device should only be performed by qualified and/or licensed individuals that are aware of the original system design criteria, hydraulic criteria, sprinkler head listing parameters, and knowledge of the state and local codes including NFPA 13 installation standards. Relocation of the device without this knowledge could adversely affect the performance of this fire protection and life safety system.

Reproduced with permission from NFPA 13-2016, Standard for the Installation of Sprinkler Systems, Copyright© 2015, National Fire Protection Association. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

# FLEXHEAD® SATISFIES SEISMIC CODE REQUIREMENTS

Typically, each unit consists of a threaded pipe nipple for connecting to the main or branch feeder line, a flexible hose in standard lengths, a reducing fitting that the sprinkler head attaches to, and a mounting bracket.

The FlexHead® hose allows the head to move in any direction during a seismic event without causing damage to the sprinkler system.



FlexHead® Industries recently satisfactorily completed full-scale seismic qualification testing at the Structural Engineering Earthquake Simulation Laboratory located at the State University of New York at Buffalo. Tests were conducted using the International Code Council (ICC) acceptance criteria “ICC-ES AC-156 Seismic Qualification Testing of Nonstructural Components”.

- More than 90% of the states in the U.S. are adopting the International Building Code (IBC) that address, among other things, the installation of fire sprinkler systems in seismic zones.
- The latest version of the IBC defers to ASCE 7 for the sprinkler/ceiling design in Seismic Design Categories 9SDC) C and D, E & F.
- In Seismic Design Category C, suspended ceilings are to be designed and installed in accordance with Ceilings & Interior Systems Construction Association (CISCA) recommendations for Zones 0-2; and sprinkler heads and other penetrations shall have a minimum of ¼ inch clearance on all sides.
- In Seismic Design Categories D, E & F, suspended ceilings are to be designed and installed in accordance with CISCA recommendations for seismic Zones 3 and 4 with some additional requirements. Except where rigid braces are used to limit lateral deflections, sprinkler heads and other penetrations shall have a 2-inch oversized ring, sleeve, or adapter through the ceiling to allow for free movement of at least 1 inch of ceiling movement in all horizontal directions.
- Flexible sprinkler connection provide characteristics that exceed the most stringent seismic code requirements. The flexibility of the hose allows the head to move with the ceiling in any direction during a seismic event without causing damage to the sprinkler system.



# FRICITION LOSS DATA & SPECIFICATIONS

Model Number	Outlet Orifice Size in (cm)	Hose Assembly Length in (mm)	Minimum Bend Radius		Maximum Number of 90° Bends		Equivalent Length of 1in. Diameter Schedule 40 Pipe (Ft)								Max Rated Pressure PSI (Kpa)	
			FM in (mm)	UL in (mm)	UL	FM	(UL) Ft (m)	(FM) 5.6k-factor Ft (m)	(FM) 8.0k-factor Ft (m)	(FM) 11.2k-factor Ft (m)	(FM) 14.0k-factor Ft (m)	(FM) 16.8k-factor Ft (m)	(FM) 22.4k-factor Ft (m)	UL PSI (Kpa)	FM PSI (Kpa)	
<b>SUPERFLEX™ 1" INTERNAL DIAMETER (I.D.) HOSE SERIES</b>																
2036SF-50	½ (1.27)	36 (914)	7 (178)	2 (50.8)	5	2	30 (9.1)	16.2 (4.9)	16.9 (5.1)	11.5 (3.5)	–	–	–	175 (1205)	175 (1205)	
2048SF-50		48 (1219)			8	3	47 (14.3)	28.7 (8.7)	29.3 (8.9)	15.4 (4.7)	–	–	–			
2072SF-50		72 (1828)			12	4	71 (21.6)	53.9 (16.4)	54.3 (16.5)	23.2 (7)	–	–	–			
2036SF-75	¾ (1.90)	36 (914)	7 (178)	2 (50.8)	5	2	29 (8.8)	–	21.5 (6.5)	21.6 (6.5)	21.8 (6.6)	22 (6.7)	–	175 (1205)	175 (1205)	
2048SF-75		48 (1219)			8	3	44 (13.4)	–	30.5 (9.2)	30.6 (9.3)	31.1 (9.4)	30.8 (9.3)	–			
2072SF-75		72 (1828)			12	4	70 (21.3)	–	48.5 (14.7)	48.8 (14.8)	49.9 (15.2)	48.6 (14.8)	–			
<b>FLEXHEAD® STANDARD/TALL COMMERCIAL 1" INTERNAL DIAMETER (I.D.) HOSE SERIES</b>																
2024T-50	½ (1.27)	24 (610)	8 (200)	3 (76.2)	3	1	11	18.4 (5.6)	7.7 (2.3)	7.6 (2.3)	–	–	–	175 (1205)	175 (1205)	
2036T-50		36 (914)			3	2	16	26.6 (8.1)	11.5 (3.5)	11.5 (3.5)	–	–	–			
2048T-50		48 (1219)			4	3	24	30.3 (9.2)	15.3 (4.6)	15.4 (4.7)	–	–	–			
2060T-50		60 (1524)			4	4	29	35.8 (10.9)	19.1 (5.8)	19.3 (5.8)	–	–	–			
2072T-50		72 (1828)			4	4	35	45.6 (13.9)	23.0 (7)	23.2 (7)	–	–	–			
2024T-75	¾ (1.90)	24 (610)	8 (200)	3 (76.2)	3	1	12	–	–	–	14.7 (4.5)	7.1 (2.1)	–	175 (1205)	175 (1205)	
2036T-75		36 (914)			3	2	18	–	21.5 (6.5)	21.6 (6.6)	21.8 (6.6)	10.9 (3.3)	–			
2048T-75		48 (1219)			4	3	23	–	30.5 (9.3)	30.6 (9.3)	29 (8.8)	14.8 (4.5)	–			
2060T-75		60 (1524)			4	4	29	–	39.5 (12)	39.6 (12)	36.1 (11)	18.7 (5.6)	–			
2072T-75		72 (1828)			4	4	32	–	48.5 (14.7)	48.8 (14.9)	43.2 (13.1)	22.6 (6.8)	–			
<b>FLEXHEAD® TALL ELBOW SERIES</b>																
2024ET-50	½ (1.27)	24 (610)	8 (200)	3 (76.2)	3	1	19	26.4 (8.0)	6.8 (2)	7.4 (2.2)	–	–	–	175 (1205)	175 (1205)	
2036ET-50		36 (914)			3	2	23	30.1 (9.1)	11.8 (3.6)	12.5 (3.8)	–	–	–			
2048ET-50		48 (1219)			4	3	27	33.8 (10.3)	16.9 (5.1)	17.6 (5.3)	–	–	–			
2060ET-50		60 (1524)			4	4	32	37.5 (11.4)	21.9 (6.6)	22.7 (6.9)	–	–	–			
2072ET-50		72 (1828)			4	4	35	41.2 (12.5)	27.0 (8.2)	27.8 (8.4)	–	–	–			
2024ET-75	¾ (1.90)	24 (610)	8 (200)	3 (76.2)	3	1	18	–	–	–	14.7 (4.5)	8.2 (2.5)	–	175 (1205)	175 (1205)	
2036ET-75		36 (914)			3	2	23	–	25.2 (7.7)	26 (7.9)	21.8 (6.6)	13 (3.9)	–			
2048ET-75		48 (1219)			4	3	23	–	32.9 (10)	33 (10)	29 (8.8)	17.8 (5.4)	–			
2060ET-75		60 (1524)			4	4	29	–	40.6 (12.3)	40 (12.1)	36.1 (11.0)	22.6 (6.8)	–			
2072ET-75		72 (1828)			4	4	32	–	48.5 (14.7)	47 (14.3)	43.2 (13.1)	27.5 (8.3)	–			
<b>FLEXHEAD® STANDARD ELBOW</b>																
2024E-50	½ (1.27)	24 (610)	8 (200)	3 (76.2)	3	1	19	26.4 (8.0)	–	–	–	–	–	175 (1205)	175 (1205)	
2036E-50		36 (914)			3	2	23	30.1 (9.2)	–	–	–	–	–			
2048E-50		48 (1219)			4	3	27	33.8 (10.3)	–	–	–	–	–			
2060E-50		60 (1524)			4	4	32	37.5 (11.4)	–	–	–	–	–			
2072E-50		72 (1828)			4	4	35	41.2 (12.6)	–	–	–	–	–			
2024E-75	¾ (1.90)	24 (610)	8 (200)	3 (76.2)	3	1	18	–	14.7 (4.5)	–	–	–	–	175 (1205)	175 (1205)	
2036E-75		36 (914)			3	2	23	–	21.8 (6.6)	–	–	–	–			
2048E-75		48 (1219)			4	3	23	–	29.0 (8.8)	–	–	–	–			
2060E-75		60 (1524)			4	4	29	–	36.1 (11.0)	–	–	–	–			
2072E-75		72 (1828)			4	4	32	–	43.2 (13.2)	–	–	–	–			

Chart continued on the next page

- Notes:
- Model Numbers: The "SF" designates SuperFlex™ Hose series. The "50" designates ½" Outlet Hose series. The "75" designates ¾" Outlet Hose series. Inlet size 1".
  - Model Numbers: The "T" designates tall drops length hose series. The "ET" designates tall elbow drop hose series. The "E" designates elbow drop hose series. The "H" designates high pressure 300PSI working pressure hose series. THE "HE" designates high pressure 300PSI elbow hose series. The "F" designates high flow rate using 1 ¼ I.D. hose series. The "DPS" designates dry pendent system hose series.
  - Max ambient temperature rating on all model numbers are 300 F (148 C)
  - Equivalent lengths are shown with maximum number of 90° bends at the minimum bend radius per agency. 2-45° or 3-30° bends equal 1-90° bend. Different values were obtained by FM and UL due to the difference in minimum bend radius testing protocol and calculation methods. Please see individual standards for more information relative to Friction Loss (equivalent length of pipe)
  - All hoses require a minimum of one bend for installation. Bend radius tool available for "T" hose, "SF" hose does not require bend radius tool.
  - 20XX, SuperFlex™ Hose, is UL Listed with MPT-24-BKT1 Bracket with largest k-factor of 16.8.
  - FM Equivalent length calculation includes Sprinkler Head friction loss. UL equivalent length calculation include the hose only.
  - FlexHead products are intended for use in hydraulically designed wet, pre-action, deluge or dry pendent sprinkler connections per NFPA 13, 13R and 13D guidelines.
  - See listing(s) approval agency for latest approval details.

# FRICION LOSS DATA & SPECIFICATIONS (cont'd)

Model Number	Outlet Orifice Size in (cm)	Hose Assembly Length in (mm)	Minimum Bend Radius		Maximum Number of 90° Bends		Equivalent Length of 1in. Diameter Schedule 40 Pipe (Ft)							Max Rated Pressure PSI (Kpa)	
			FM in (mm)	UL in (mm)	UL	FM	(UL) Ft (m)	(FM) 5.6k-factor Ft (m)	(FM) 8.0k-factor Ft (m)	(FM) 11.2k-factor Ft (m)	(FM) 14.0k-factor Ft (m)	(FM) 16.8k-factor Ft (m)	(FM) 22.4k-factor Ft (m)	UL PSI (Kpa)	FM PSI (Kpa)
<b>FLEXHEAD® HIGH PRESSURE 1" INTERNAL DIAMETER (I.D.) HOSE SERIES</b>															
2024H-50	½ (1.27)	24 (610)	8 (200)	3 (76.2)	3	2	11	18.4 (5.6)	7.7 (2.3)	7.6 (2.3)	-	-	-	300 PSI (2068Kpa)	300 PSI (2068Kpa)
2036H-50		36 (914)			3	3	16	26.6 (8.1)	11.5 (3.5)	11.5 (3.5)	-	-	-		
2048H-50		48 (1219)			4	4	24	30.3 (9.2)	15.3 (4.6)	15.4 (4.7)	-	-	-		
2060H-50		60 (1524)			4	4	29	35.8 (10.9)	19.1 (5.8)	19.3 (5.8)	-	-	-		
2072H-50		72 (1828)			4	4	35	45.6 (13.9)	23 (7)	23.2 (7)	-	-	-		
2024H-75	¾ (1.90)	24 (610)	8 (200)	3 (76.2)	3	2	12	-	14.7 (4.5)	14.7 (4.5)	14.7 (4.5)	7.1 (2.1)	-	300 PSI (2068Kpa)	300 PSI (2068Kpa)
2036H-75		36 (914)			3	3	18	-	21.8 (6.6)	21.6 (6.6)	21.8 (6.6)	10.9 (3.3)	-		
2048H-75		48 (1219)			4	4	23	-	29 (8.8)	30.6 (9.3)	29 (8.8)	14.8 (4.5)	-		
2060H-75		60 (1524)			4	4	29	-	36.1 (11.0)	39.6 (12)	36.1 (11.0)	18.7 (5.7)	-		
2072H-75		72 (1828)			4	4	32	-	43.2 (13.1)	48.8 (14.8)	43.2 (13.1)	22.6 (6.8)	-		
<b>FLEXHEAD® HIGH PRESSURE ELBOW</b>															
2024HE-50	½ (1.27)	24 (610)	8 (200)	3 (76.2)	3	2	19	14.7 (4.5)	6.8 (2)	7.4 (2.2)	-	-	-	300 PSI (2068Kpa)	300 PSI (2068Kpa)
2036HE-50		36 (914)			3	3	23	21.8 (6.6)	11.8 (3.6)	12.5 (3.8)	-	-	-		
2048HE-50		48 (1219)			4	4	27	29.0 (8.8)	16.9 (5.1)	17.6 (5.3)	-	-	-		
2060HE-50		60 (1524)			4	4	32	36.1 (11)	21.9 (6.6)	22.8 (6.9)	-	-	-		
2072HE-50		72 (1828)			4	4	35	43.2 (13.1)	27 (8.2)	27.8 (8.4)	-	-	-		
2024HE-75	¾ (1.90)	24 (610)	8 (200)	3 (76.2)	3	2	18	-	14.7 (4.5)	-	14.7 (4.5)	8.2 (2.5)	-	300 PSI (2068Kpa)	300 PSI (2068Kpa)
2036HE-75		36 (914)			3	3	23	-	21.8 (6.6)	26 (7.9)	21.8 (6.6)	13 (3.9)	-		
2048HE-75		48 (1219)			4	4	23	-	29 (8.8)	33 (10)	29 (8.8)	17.8 (5.4)	-		
2060HE-75		60 (1524)			4	4	29	-	36.1 (11.0)	40 (12.2)	36.1 (11.0)	22.6 (6.8)	-		
2072HE-75		72 (1828)			4	4	32	-	43.2 (13.1)	47 (14.3)	43.2 (13.1)	27.5 (8.3)	-		
<b>FLEXHEAD® DRY PENDENT SYSTEM</b>															
2024-DPS	½ (2.54)	24 (610)	7 (180)	-	-	1	-	18.4 (5.6)	7.7 (2.3)	7.6 (2.3)	-	7.1 (2.1)	10.7 (3.3)	-	175 (1205)
2036-DPS		36 (914)			-	2	-	26.6 (8.1)	11.5 (2.3)	11.5 (3.5)	-	10.9 (3.3)	15.1 (4.6)		
2048-DPS		48 (1219)			-	3	-	30.3 (9.2)	15.3 (3.5)	15.4 (4.7)	-	14.8 (4.5)	21.5 (6.5)		
2060-DPS		60 (1524)			-	4	-	35.8 (10.9)	19.1 (5.8)	19.3 (5.9)	-	18.7 (5.7)	25.3 (7.7)		
2072-DPS		72 (1828)			-	4	-	45.6 (13.9)	23 (7)	23.2 (7)	-	22.6 (6.9)	26.9 (8.1)		
<b>1.25" INTERNAL DIAMETER (I.D.) HOSE SERIES</b>															
2036F-50	½ (1.27)	36 (914)	7 (180)	-	-	1	-	4.1 (1.2)	4.1 (1.2)	4.1 (1.2)	-	-	-	-	175 (1205)
2048F-50		48 (1219)			-	2	-	5.4 (1.6)	5.6 (1.7)	5.7 (1.7)	-	-	-		
2072F-50		72 (1828)			-	4	-	8.0 (2.4)	8.6 (2.6)	9.1 (2.7)	-	-	-		
2036F-75	¾ (1.90)	36 (914)	7 (180)	-	-	1	-	-	-	-	3.4 (1.0)	3.4 (1.0)	-	-	175 (1205)
2048F-75		48 (1219)			-	2	-	-	-	-	4.8 (1.5)	4.8 (1.4)	-		
2072F-75		72 (1828)			-	4	-	-	-	-	-	7.6 (2.3)	7.6 (2.3)		
2036F-100	1 (2.54)	36 (914)	7 (180)	-	-	2	-	-	-	-	-	-	3.4 (1.0)	-	175 (1205)
2048F-100		48 (1219)			-	3	-	-	-	-	-	-	4.8 (1.4)		
2072F-100		72 (1828)			-	4	-	-	-	-	-	-	-		

**Notes:**

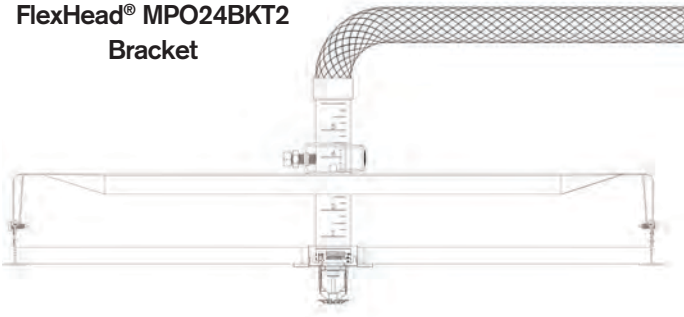
- Model Numbers: The "SF" designates SuperFlex™ Hose series. The "50" designates ½" Outlet Hose series. The "75" designates ¾" Outlet Hose series. Inlet size 1".
- Model Numbers: The "T" designates tall drops length hose series. The "ET" designates tall elbow drop hose series. The "E" designates elbow drop hose series. The "H" designates high pressure 300PSI working pressure hose series. THE "HE" designates high pressure 300PSI elbow hose series. The "F" designates high flow rate using 1-¼ I.D. hose series. The "DPS" designates dry pendent system hose series.
- Max ambient temperature rating on all model numbers are 300 F (148 C)
- Equivalent lengths are shown with maximum number of 90° bends at the minimum bend radius per agency. 2-45° or 3-30° bends equal 1-90° bend. Different values were obtained by FM and UL due to the difference in minimum bend radius testing protocol and calculation methods. Please see individual standards for more information relative to Friction Loss (equivalent length of pipe)
- All hoses require a minimum of one bend for installation. Bend radius tool available for "T" hose, "SF" hose does not require bend radius tool.
- 20XX, SuperFlex™ Hose, is UL Listed with MPT-24-BKT1 Bracket with largest k-factor of 16.8.
- FM Equivalent length calculation includes Sprinkler Head friction loss. UL equivalent length calculation include the hose only.
- FlexHead products are intended for use in hydraulically designed wet, pre-action, deluge or dry pendent sprinkler connections per NFPA 13, 13R and 13D guidelines.
- See listing(s) approval agency for latest approval details.

We invented the concept of flexible fire protection™

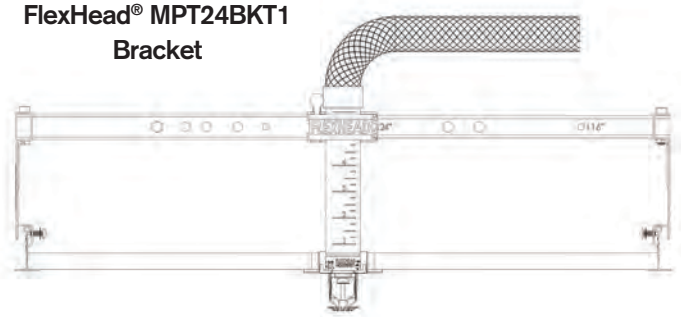
## FLEXHEAD® CEILING DETAIL

### FlexHead® Suspended Ceiling Detail

FlexHead® MPO24BKT2  
Bracket



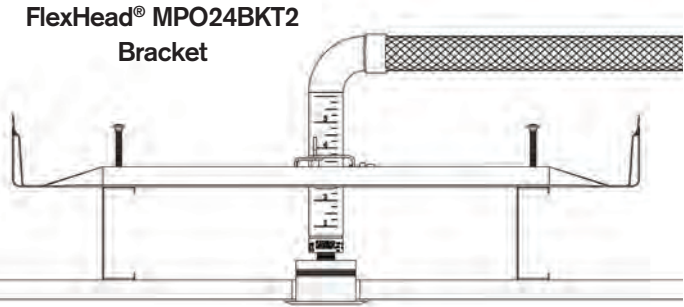
FlexHead® MPT24BKT1  
Bracket



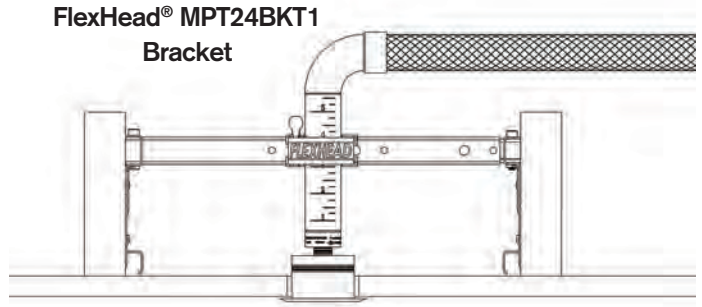
\*Allows for bracket installation without pre-installing the ceiling tile

### FlexHead® Sheetrock Ceiling Detail

FlexHead® MPO24BKT2  
Bracket

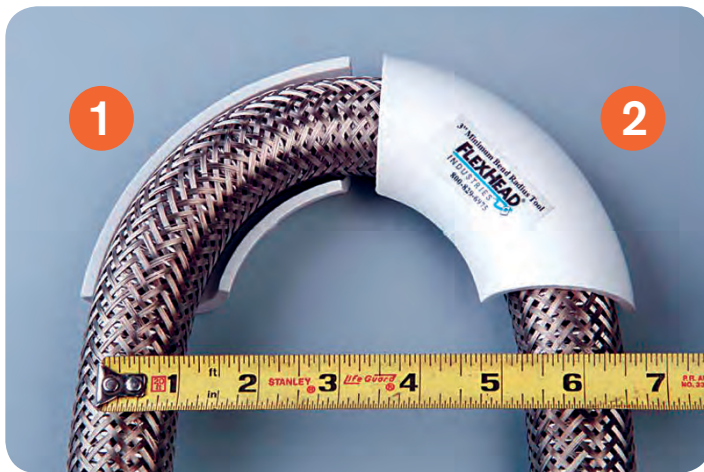


FlexHead® MPT24BKT1  
Bracket



Each FM approved and UL listed unit is ready to install, pressure- and leak-tested, and comes complete with a flexible stainless steel hose and mounting bracket with adjustable hub.

### FlexHead® Standard Hose 3" Bend Radius per UL Guidelines (2 Bends Shown)



### FlexHead® Standard Hose Shown with 3 Bends

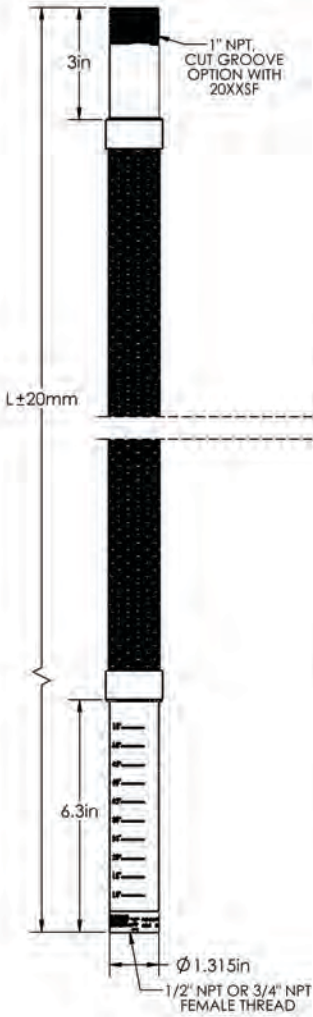


Notes:

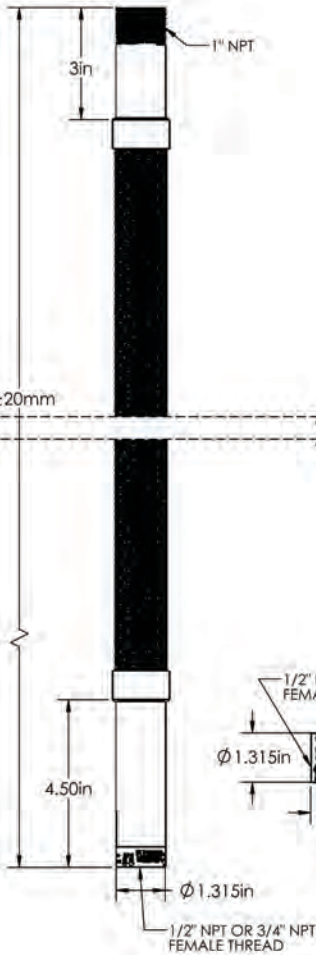
See SuperFlex™ bend radius information on page 9. SuperFlex™ 2" bend radius eliminates the need to count or measure the bends.

# FLEXHEAD® CEILING DETAIL

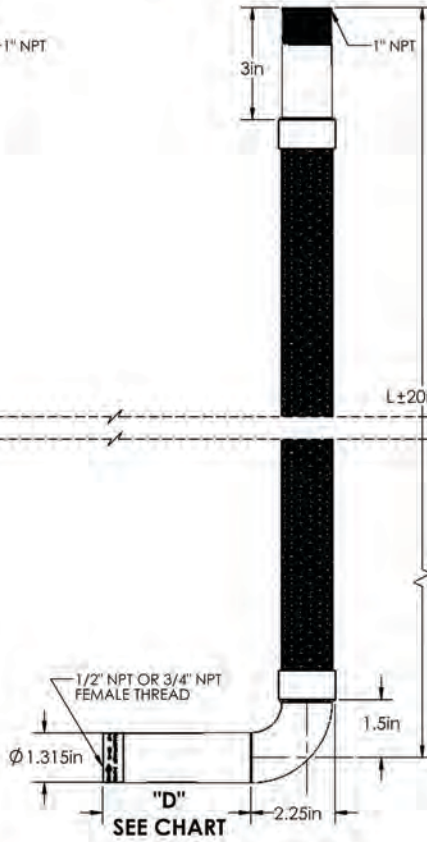
**REGULAR 1" HOSE MODEL:**  
20XXSF & 20XXT SERIES



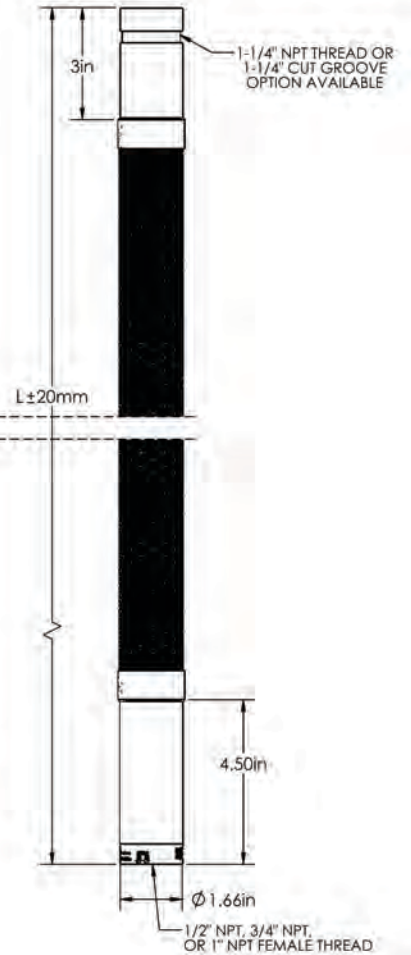
**REGULAR 1" HOSE MODEL:**  
20XXH SERIES



**ELBOW 1" HOSE MODEL:**  
20XXE, 20XXHE, & 20XXET SERIES



**REGULAR 1-1/4" HOSE MODEL:**  
20XXF SERIES



MODEL #	"Hose Assembly (L) Length Inches (mm)"	"Drop "D" Size (Inches)"
2024E/2024HE	24 (610)	1.5, 3.0, & 4.0
2036E/2036HE	36 (914)	
2048E/2048HE	48 (1219)	
2060E/2060HE	60 (1524)	
2072E/2072HE	72 (1828)	
2024ET	24 (610)	5.71
2036ET	36 (914)	
2048ET	48 (1219)	
2060ET	60 (1524)	
2072ET	72 (1828)	

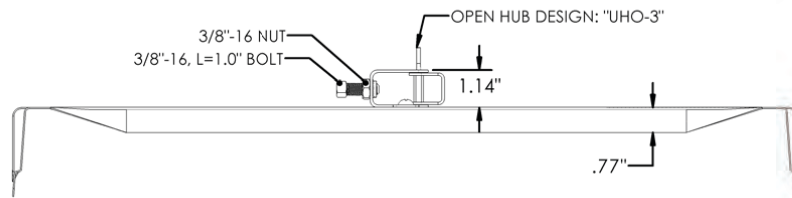
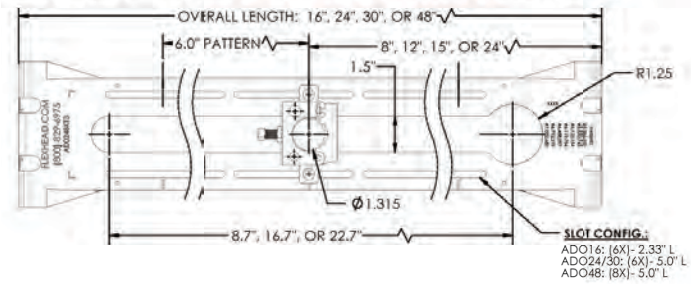
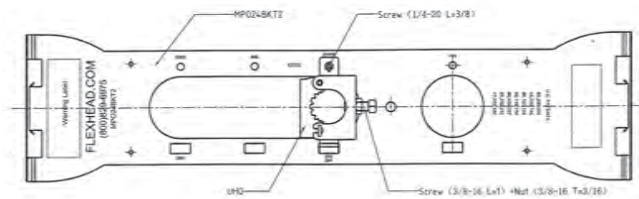
# BRACKET SPECIFICATION SHEET

**Multiport Design (For use with T-bar and Metal Stud Applications)**

**Model # MP024BKT2**

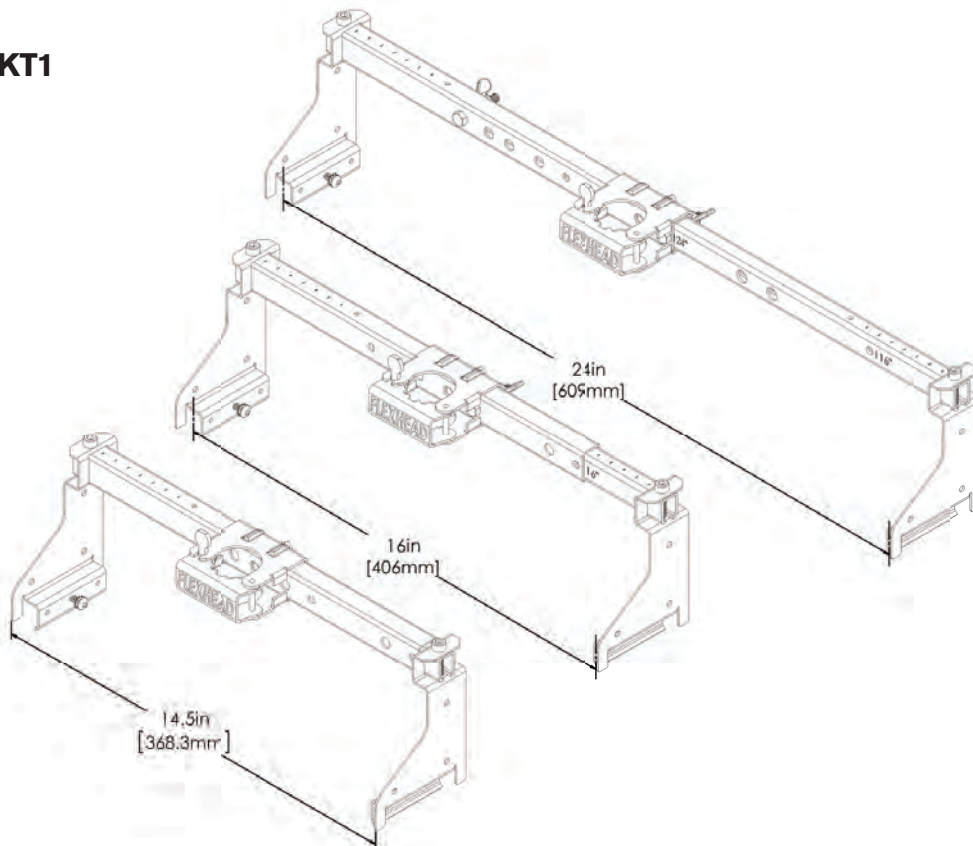
**Adjustable Design (For use with T-bar, Metal Stud and Chicago Grid Applications): standard sizes are 16", 24", 30" and 48" long**

**Model # AD016BKT3, AD024BKT3, AD030BKT3, AD048BKT3**



**Multi-Position Tall Bracket (For use with T-bar, Wood and Metal Studs): 24" standard size collapsible to 14.5" and 16" long.**

**Model # MPT24BKT1**



# FLEXHEAD® COMMERCIAL PRODUCTS

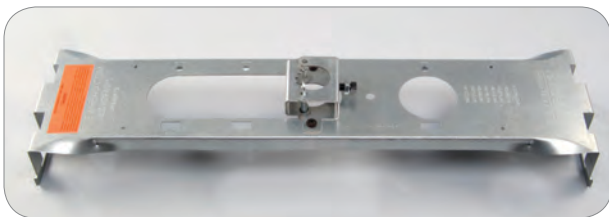


24", 36", 48", 60", 72" hose lengths,  
 Rated working pressure 175psi, optional 300psi.  
 Straight model,  
 Standard 1" I.D., optional 1¼" I.D.

**SuperFlex™** Hose Lengths: 36", 48" and 72"



24", 36", 48", 60", 72" hose lengths.  
 Rated working pressure 175psi, optional 300psi.  
 Elbow model.



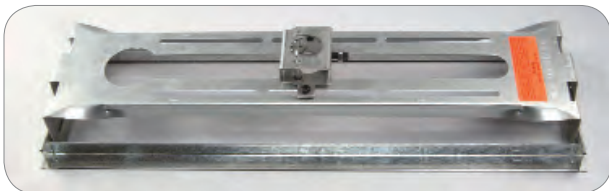
24" Multiport Bracket for T-bar Grid or Metal Stud applications.

**Model #: MP024BKT2**



16"/24"/30"/48" Adjustable Bracket for T-bar Grid, Chicago Grid or Metal Stud applications.

**Model #s: AD016BKT3/AD024BKT3/AD030BKT3/ADO48BKT3**



Hat Channel Bracket System for Metal Stud or Hat Channel applications.

**Model #: ADO24BKT3 with BKT-HTA**



24" Multi-Position Tall Bracket

**Model #: MPT24BKT1**



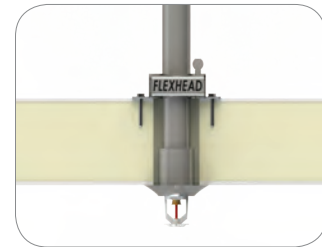
Bracket for Confined Space applications having a concrete deck above the ceiling.

**Model #: UHO-3**



Armstrong® TechZone Ceiling Bracket for use with Armstrong TechZone Ceiling systems.  
 Available in 6" long.

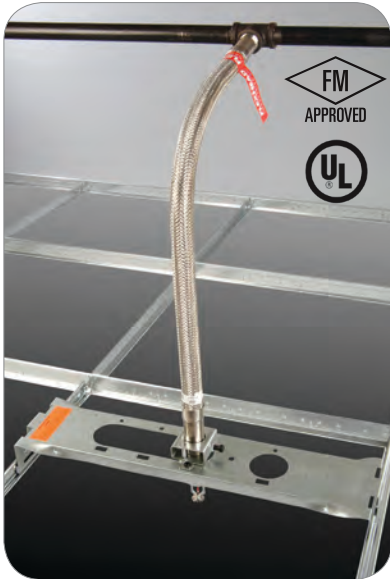
**Model #: SP06TZBKT2**



Dry Pendent System for Freezer and Cold Storage applications

**Model #: 20XX-DPS-UH03**

## FLEXIBLE SPRINKLER HOSE FITTINGS USE EXAMPLES



**Suspended Ceilings**



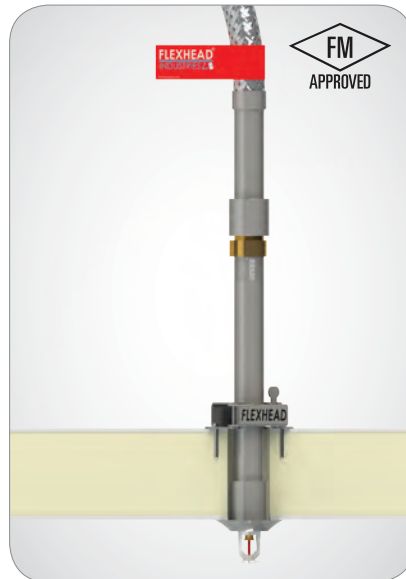
**SuperFlex™**



**Exhaust Ducts**



**Institutional**



**Cold Storage and Freezer Applications**



**Cleanroom Ceilings**

Flexible Sprinkler Hose Fittings were developed to satisfy specific needs of the industry, save the industry millions in losses, provide superior seismic protection and promote the installation of sprinklers. They have been evaluated for use by both Underwriters Laboratory and FM approvals and are tested to approval standards that were independently developed by the testing laboratories. The first listing for a Flexible Sprinkler Hose Fitting was in 1990.

# WARRANTY

## FLEXHEAD® PRODUCTS LIMITED WARRANTY

Flexhead Industries, Inc. warrants that its products will be free from defects in materials and workmanship under normal conditions of use and service when properly installed for a period of one year from date of sale. Our obligation under this warranty is limited to repairing or replacing any product that is returned to us with transportation charges prepaid within one year after the date of original sale and that our examination shows to our satisfaction to have been defective in materials or workmanship under normal conditions of use and service. The decision as to whether to repair or to replace any product shall be made by us, and any repair shall be made at our facility. Notwithstanding the foregoing, the following are specifically excluded from the coverage of this warranty:

- (a) Any product not manufactured by Flexhead Industries, Inc., including any sprinkler head(s) installed with or attached to a Flexhead Industries, Inc. product, provided, however, Flexhead Industries Inc. hereby assigns the right to enforce any original manufacturer's warranty of such product to the original purchaser of the Flexhead Industries, Inc. product(s). For the avoidance of doubt, Flexhead Industries, Inc. does not manufacture sprinkler heads and, therefore, does not warrant any such products.
- (b) defects resulting from ordinary wear and tear, including, without limitation, the replacement of the so-called poly bag components of any Flexhead Industries, Inc. product
- (c) products that have been altered in any manner by the buyer or by anyone other than Flexhead Industries, Inc.
- (d) products that have been subjected to misuse, abusive use, or damage by accident or casualty
- (e) products that have been installed or used in a manner contrary to our specifications, instructions or recommendation
- (f) products that have been installed or used in a manner that is not in compliance with all applicable requirements of any code, law, regulation or rule of any federal, state or local governmental or industry authority; and
- (g) products that have not been inspected and maintained in accordance with our specifications, instructions or recommendations, including, without limitation, our recommendations as to following the inspection and maintenance standards published by Factory Mutual Research Corporation (FMRC) and the National Fire Protection Association (NFPA); and
- (h) products that have been affected by Microbiologically Influenced Corrosion (MIC).

This warranty is not assignable and shall benefit only the original purchaser of a Flexhead Industries, Inc. product. If any provision hereof or any portion of any provision shall be held invalid, the remainder of this Limited Warranty shall not be affected thereby, and all provisions of this Limited Warranty shall remain valid and in full force and effect to the fullest extent permitted by law. THIS WARRANTY IS IN LIEU OF ALL IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. NOTWITHSTANDING ANY PROVISION TO THE CONTRARY HEREIN OR ANY APPLICABLE LAW TO THE CONTRARY, IN NO EVENT SHALL FLEXHEAD INDUSTRIES, INC. BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES UNDER ANY CIRCUMSTANCES WHATSOEVER, WHETHER ARISING FROM ANY BREACH OF THIS LIMITED WARRANTY OR OTHERWISE ARISING FROM OR IN CONNECTION WITH THE USE OR OPERATION OF, OR ANY DEFECT IN, ANY FLEXHEAD INDUSTRIES, INC. PRODUCT, OR OTHERWISE. The risk of damages from any breach of warranty with respect to injury to any person will be born by the purchaser of Flexhead Industries, Inc. product.







56 Lowland Street  
Holliston, MA 01746  
PHONE / 508-893-9596  
TOLL FREE / 800-829-6975

[www.flexhead.com](http://www.flexhead.com)



**UNISTRUT**



**Columbia-MBF**



**UNISTRUT**  
Construction



**SprinkFLEX**



**KAF-TECH**



**COBRASYSTEMSINC**

**Calconduit**

**Calbrite**

**Calbond**



**BID FORM**

FOR: KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA  
MERCED  
MERCED CALIFORNIA  
JULY 26, 2018

BID TO: CONSTRUCTION SERVICES & MANAGEMENT  
UNIVERSITY OF CALIFORNIA MERCED  
5200 N. LAKE ROAD  
MERCED, CALIFORNIA 95344  
209-201- 8174

BID FROM: \_\_\_\_\_  
(Name of Bidder)

\_\_\_\_\_

(Address)

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(City) (State) (Zip Code)

\_\_\_\_\_

(Telephone Number)

\_\_\_\_\_

(Date Bid Submitted)

Note: All portions of this Bid Form must be completed and the Bid Form must be signed before the Bid is submitted. Failure to do so will result in the Bid being rejected as non-responsive.

1.0 BIDDER'S REPRESENTATIONS

Bidder, represents that a) Bidder and all Subcontractors, regardless of tier, has the appropriate current and active Contractor's licenses required by the State of California and the Bidding Documents; b) it has carefully read and examined the Bidding Documents for the proposed Work on this Project; c) it has examined the site of the proposed Work and all Information Available to Bidders; d) it has become familiar with all the conditions related to the proposed Work, including the availability of labor, materials, and equipment; e) Bidder and all Subcontractors, regardless of tier, are currently registered with the California Department of Industrial Relations pursuant to California Labor Code Section 1725.5 and 1771.1. Bidder hereby offers to furnish all labor, materials, equipment, tools, transportation, and services necessary to complete the proposed Work on this Project in accordance with the Contract Documents for the sums quoted. Bidder further agrees that it will not withdraw its Bid within 60 days after the Bid Deadline, and that, if it is selected as the apparent lowest responsive and responsible Bidder, that it will, within 10 days after receipt of notice of selection, sign and deliver to University the Agreement in triplicate and furnish to University all items required by the Bidding Documents. If awarded the Contract, Bidder agrees to complete the proposed Work within 63 days after the date of commencement specified in the Notice to Proceed.

2.0 ADDENDA

Bidder acknowledges that it is Bidder's responsibility to ascertain whether any Addenda have been issued and if so, to obtain copies of such Addenda from University's Facility at the appropriate address stated on Page 1 of this Bid Form. Bidder therefore agrees to be bound by all Addenda that have been issued for this Bid.

3.0 NOT USED

4.0 LUMP SUM BASE BID

\$ 

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 , 

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(Place figures in appropriate boxes.)

Bidder includes in the Lump Sum Base Bid the following allowances: NONE

5.0 SELECTION OF APPARENT LOW BIDDER

Refer to the Instructions to Bidders for selection of apparent low bidder.

6.0 UNIT PRICES

The quantities set forth in the Unit Prices are estimates in Section 01 22 00. University does not represent that the actual quantity of any Unit Price item will equal the Estimated Quantity stated below. University will perform the extension of the Unit Price times the respective Estimated Quantity.

**Unit Price #1:** Patch drywall and paint

Estimated Quantity of units: 5,000 sq/ft

\$    ,    •   Per sq/ft

(Place Unit Price figures in appropriate boxes.)

**Unit Price #2:** Remove and replace carpet tiles

Estimated Quantity of units: 1,500 sq/ft

\$    ,    •   Per Sq/ft

(Place Unit Price figures in appropriate boxes.)

**Unit Price #3:** Remove and replace damaged ceiling tiles

Estimated Quantity of units: 500 sq/ft

\$    ,    •   Per sq/ft

(Place Unit Price figures in appropriate boxes.)

7.0 DAILY RATE OF COMPENSATION FOR COMPENSABLE DELAYS

Bidder shall determine and provide below the daily rate of compensation for any Compensable Delay caused by University at any time during the performance of the Work.

\$   ,    •   X 10 multiplier  
(Place figures in appropriate boxes.)

Failure to fill in a dollar figure or a value of zero for the daily rate for Compensable Delay shall render the bid non-responsive. The dollar figure shall be greater than 1.

The daily rate shown above will be the total amount of Contractor entitlement for each day of Compensable Delay caused by University at any time during the performance of the Work and shall constitute payment in full for all delay costs, direct or indirect (including, without limitation, compensation for all extended home

office overhead and extended general conditions), of the Contractor and all subcontractors, suppliers, persons, and entities under or claiming through Contractor on the Project. The number of days of Compensable Delay shown as a "multiplier" above is not intended as an estimate of the number of days of Compensable Delay anticipated by the University. The University will pay the daily rate of compensation only for the actual number of days of Compensable Delay, as defined in the General Conditions; the actual number of days of Compensable Delay may be greater or lesser than the "multiplier" shown above. Bidder shall not bid less than zero dollars for the daily rate (i.e., the daily rate cannot be a negative number).

#### 8.0 ALTERNATES - NONE

In order for a Bid to be responsive, Bidder must submit an additive bid, a deductive bid, or a "no change" bid, for each Alternate listed below. The failure to do so shall result in the Bid being rejected as non-responsive. The failure to quote an amount, unless the bidder marks the "no change" box, will result in the bid being rejected as non-responsive.

9.0 LIST OF SUBCONTRACTORS

Bidder will use Subcontractors for the Work:

Yes \_\_\_\_

If “yes”, provide in the spaces below (a) the name, the location of the place of business, and the California contractor license number of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the state of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid, (b) the portion of the work which will be done by each subcontractor. The prime contractor shall list only one subcontractor for each such portion as is defined by the prime contractor in its bid.

Portion of the Work Activity (e.g. electrical, mechanical, concrete)	Subcontractor		
	Name of Business	Location of Business (City)	License No.

(Note: Add additional pages if required.)



10.0 LIST OF CHANGES IN SUBCONTRACTORS DUE TO ALTERNATES

The information below must be provided for all changes in first-tier Subcontractors if University selects Alternates. List changes in Subcontractors only for those portions of the Work valued in excess of one-half of 1 percent of prime contractor's total bid.

Alternate No.	Subcontractor			License No.
	Portion of the Work Activity (e.g. electrical, mechanical, concrete)	Name	Location (City)	

(Note: Add additional pages if required.)

11.0 BIDDER INFORMATION

TYPE OF ORGANIZATION:

\_\_\_\_\_  
(Corporation, Partnership, Individual, Joint Venture, etc.)

IF A CORPORATION, THE CORPORATION IS ORGANIZED UNDER THE LAWS OF:

THE STATE OF \_\_\_\_\_  
(State)

NAME OF PRESIDENT OF THE CORPORATION:

\_\_\_\_\_  
(Insert Name)

NAME OF SECRETARY OF THE CORPORATION:

\_\_\_\_\_  
(Insert Name)

IF A PARTNERSHIP, NAMES OF ALL GENERAL PARTNERS:

\_\_\_\_\_  
(Insert Names)  
\_\_\_\_\_

CALIFORNIA CONTRACTORS LICENSE(S):

\_\_\_\_\_  
(Classification)

\_\_\_\_\_  
(License Number)

\_\_\_\_\_  
(Expiration Date)

(For Joint Venture, list Joint Venture's license and licenses for all Joint Venture partners.)

12.0 REQUIRED COMPLETED ATTACHMENTS

The following documents are submitted with and made a condition of this Bid:

1. Bid Security in the form of \_\_\_\_\_  
(Bid Bond or Certified Check)

13.0 DECLARATION

I, \_\_\_\_\_, hereby declare that I am the  
(Printed Name)

\_\_\_\_\_ of \_\_\_\_\_  
(Title) (Name of Bidder)

submitting this Bid Form; that I am duly authorized to execute this Bid Form on behalf of Bidder; and that all information set forth in this Bid Form and all attachments hereto are, to the best of my knowledge, true, accurate, and complete as of its submission date.

I further declare that this bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I declare, under penalty of perjury, that the foregoing is true and correct and that this declaration was executed at: \_\_\_\_\_(Name of City if within a City, otherwise Name of County),

in the State of \_\_\_\_\_, on \_\_\_\_\_.  
(State) (Date)

\_\_\_\_\_  
(Signature)

**BID BOND**

KNOW ALL PERSONS BY THESE PRESENTS:

That we, \_\_\_\_\_,

as Principal, and \_\_\_\_\_, as Surety, are held and firmly bound unto THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, hereinafter called THE REGENTS, in the sum of 10% of the Lump Sum Base Bid amount for payment of which in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, Principal has submitted a Bid for the work described as follows:

KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA MERCED  
MERCED, CALIFORNIA  
PROJECT NO.: 908074

NOW, THEREFORE, if Principal shall not withdraw said Bid within the time period specified after the Bid Deadline, as defined in the Bidding Documents, or within 60 days after the Bid Deadline if no time period be specified, and, if selected as the apparent lowest responsible Bidder, Principal shall, within the time period specified in the Bidding Documents, do the following:

- (1) Enter into a written agreement, in the prescribed form, in accordance with the Bid.
- (2) File two bonds with THE REGENTS, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by the Bidding Documents.
- (3) Furnish certificates of insurance and all other items as required by the Bidding Documents.

In the event of the withdrawal of said Bid within the time period specified, or within 60 days if no time period be specified, or the disqualification of said Bid due to failure of Principal to enter into such agreement and furnish such bonds, certificates of insurance, and all other items as required by the Bidding Documents, if Principal shall pay to THE REGENTS an amount equal to the difference, not to exceed the amount hereof, between the amount specified in said Bid and such larger amount for which THE REGENTS procure the required work covered by said Bid, if the latter be in excess of the former, then this obligation shall be null and void, otherwise to remain in full force and effect.

In the event suit is brought upon this bond by THE REGENTS, Surety shall pay reasonable attorneys' fees and costs incurred by THE REGENTS in such suit.

IN WITNESS WHEREOF, we have hereunto set our hands this \_\_\_\_\_ day of  
, 20\_\_.

Principal: \_\_\_\_\_  
(Name of Firm)

By: \_\_\_\_\_

Title: \_\_\_\_\_

Surety: \_\_\_\_\_  
(Name of Firm)

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address for Notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: Notary acknowledgement for Surety and Surety's Power of Attorney must be attached.

**AGREEMENT**

THIS AGREEMENT is made as of the \_\_\_\_ day of \_\_\_\_\_ between the University,  
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA,

whose facility is: University of California  
Merced Campus

whose address for notices is: Physical Operations, Planning & Development  
University of California  
5200 n. Lake Rd.  
Merced, California 95343

and Contractor:  
whose address for notices is:

for the Project: Kolligian Library 3W Renovation  
University of California Merced  
Merced, California

University's Responsible Administrator: Mike McLeod  
Vice Chancellor/Chief Operating Officer  
University of California Merced

University's Representative is: Fran Telechea  
Construction Services & Management  
University of California Merced  
whose address for notices is: Physical Operations, Planning & Development  
University of California  
5200 N. Lake Rd.  
Merced, California 95343

Contract Documents for the  
Work Prepared by: Stephanie Reed  
Paul Halajian Architects  
389 Clovis Ave., Suite 100  
Clovis, CA 93612  
559-297-7900

University and Contractor hereby agree as follows:

**ARTICLE 1 WORK** - Contractor shall provide all work required by the Contract Documents (the "Work"). Contractor agrees to do additional Work arising from changes ordered by the University pursuant to Article 7 of the General Conditions. Contractor shall (1) pay all sales, consumer and other taxes and (2) obtain and pay for any governmental licenses and permits necessary for the work, other than building and utility permits.

**ARTICLE 2 CONTRACT DOCUMENTS** - "Contract Documents" means the Advertisement for Bids, Instructions To Bidders, Supplementary Instructions to Bidders, Bid Form, this Agreement, General Conditions, Supplementary Conditions, Exhibits, Specifications, List of Drawings, Drawings, Addenda, Notice to Proceed, Change Orders, Notice of Completion, and all other documents identified in this Agreement of which together form the Contract between University and Contractor for the Work (the "Contract"). The Contract constitutes the complete agreement between University and Contractor and

supersedes any previous agreements or understandings.

**ARTICLE 3 CONTRACT SUM** - Subject to the provisions of the Contract Documents University shall pay to Contractor, for the performance of the Work, \$, the "Contract Sum".

The Contract Sum includes the following Allowances:

The Contract Sum includes the following Alternates accepted by University

University reserves the right to accept the following Alternates within 90 days after the date of this Agreement:

Unit prices, if any, are as follows:

The Contract Sum will be increased by an amount equal to the unit price multiplied by the actual number of units of each unit price item incorporated in the Work.

**ARTICLE 4 CONTRACT TIME** - Contractor shall commence the Work on the date specified in the Notice to Proceed and fully complete the work within 63 days, the "Contract Time".

By signing this agreement, Contractor represents to University that the Contract Time is reasonable for completion of the work and that Contractor will complete the Work within the Contract Time. Time limits stated in the Contract Documents are of the essence of the Contract.

**ARTICLE 5 LIQUIDATED DAMAGES** - If Contractor fails to meet Substantial Completion milestones as described in the summary of work 01 11 10 part 1, Contractor shall be assessed liquidated damages in the amount of \$1,500.00 per day for each calendar day following the specified date of Substantial Completion for that phase where the Work remains incomplete (Saturdays, Sundays, and holidays included).

**ARTICLE 6 COMPENSABLE DELAY** - If Contractor is entitled to an increase in the Contract Sum as a result of a Compensable Delay, determined pursuant to Articles 7 and 8 of the General Conditions, the Contract Sum will be increased by the sum of \$ per day for each day for which such compensation is payable.

**ARTICLE 7 DUE AUTHORIZATION** - The person or persons signing this Agreement on behalf of Contractor hereby represent and warrant to University that this Agreement is duly authorized, signed, and delivered by Contractor.

THIS AGREEMENT is entered into by University and Contractor as of the date set forth above.

CONTRACTOR:

UNIVERSITY:

The Regents of the University of California

\_\_\_\_\_  
(Name of Firm)

\_\_\_\_\_  
University of California, Merced

\_\_\_\_\_  
(Type of Organization)

\_\_\_\_\_  
(Facility)

By: \_\_\_\_\_

By: \_\_\_\_\_

(Signature)

(Signature)

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
Mick McLeod

(Printed Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
Vice Chancellor/Chief Operating Officer

(Title)

California Contractor's License(s):

\_\_\_\_\_  
(Name of Licensee)

\_\_\_\_\_  
(Classification and License Number)

\_\_\_\_\_  
(Expiration Date)

\_\_\_\_\_  
Employer Identification Number

\_\_\_\_\_  
(EIN NUMBER)

Attach notary acknowledgment for all signatures of Contractor. If signed by other than the sole proprietor, a general partner, or corporate officer, attach original notarized Power of Attorney or Corporate Resolution.



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UNIVERSITY OF CALIFORNIA, MERCED  
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**ARTICLE 1  
GENERAL PROVISIONS**

**1.1 BASIC DEFINITIONS**

**1.1.1 APPLICABLE CODE REQUIREMENTS**

The term "Applicable Code Requirements" means all laws, statutes, the most recent building codes, ordinances, rules, regulations, and lawful orders of all public authorities having jurisdiction over University, Contractor, any Subcontractor, the Project, the Project site, the Work, or the prosecution of the Work including without limitation the requirements set forth in Article 3.7.

**1.1.2 APPLICATION FOR PAYMENT**

The term "Application For Payment" means the submittal from Contractor wherein payment for certain portions of the completed Work is requested in accordance with Article 9.

**1.1.3 BENEFICIAL OCCUPANCY**

The term "Beneficial Occupancy" means the University's occupancy or use of any part of the Work in accordance with Article 9.

**1.1.4 CERTIFICATE FOR PAYMENT**

The term "Certificate For Payment" means the form signed by University's Representative attesting to the Contractor's right to receive payment for certain completed portions of the Work in accordance with Article 9.

**1.1.5 CHANGE ORDER**

See Article 7.2 of the General Conditions.

**1.1.6 CLAIM**

See Article 4.3 of the General Conditions.

**1.1.7 COMPENSABLE DELAY**

The term "Compensable Delay" means a delay that entitles the Contractor to an adjustment of the Contract Sum and an adjustment of the Contract Time pursuant to Articles 7 and 8 of the General Conditions.

**1.1.8 CONTRACT**

The term "Contract" shall have the meaning identified in Article 2 of the Agreement.

**1.1.9 CONTRACT DOCUMENTS**

The term "Contract Documents" means all documents listed in Article 2 of the Agreement, as modified by Change Order, including but not limited to the Drawings and Specifications.

**1.1.10 CONTRACT MILESTONE**

The term "Contract Milestone" means any requirement in the Contract Documents that reflects a planned point in time for the start or completion of a portion of the Work measured from i) the date of the Notice to Proceed or ii) the date of another Contract Milestone defined in the Contract Documents, as applicable.

**1.1.11 CONTRACT SCHEDULE**

The term "Contract Schedule" means the graphical representation of a practical plan, in accordance with the Specifications, to perform and complete the Work within the Contract Time in accordance with Article 3.

**1.1.12 CONTRACT SUM**

The term "Contract Sum" means the amount of compensation stated in the Agreement for the performance of the Work, as adjusted by Change Order.

**1.1.13 CONTRACT TIME**

The term "Contract Time" means the number of days set forth in the Agreement, as adjusted by Change Order, within which Contractor must achieve Final Completion.

**1.1.14 CONTRACTOR**

The term "Contractor" means the person or firm identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.

1.1.15 CONTRACTOR FEE

See Article 7.3 of the General Conditions.

1.1.16 COST OF EXTRA WORK

See Article 7.3 of the General Conditions.

1.1.17 DAY

The term "day," as used in the Contract Documents, shall mean calendar day, unless otherwise specifically provided.

1.1.18 DEFECTIVE WORK

The term "Defective Work" means work that is unsatisfactory, faulty, omitted, incomplete, deficient, or does not conform to the requirements of the Contract Documents, directives of University's Representative, or the requirements of any inspection, reference standard, test, or approval specified in the Contract Documents.

1.1.19 DRAWINGS

The term "Drawings" means the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. The Drawings are listed in the List of Drawings.

1.1.20 EXCUSABLE DELAY

The term "Excusable Delay" means a delay that entitles the Contractor to an adjustment of the Contract Time but not an adjustment of the Contract Sum, pursuant to Articles 7 and 8 of the General Conditions.

1.1.21 EXTRA WORK

The term "Extra Work" means Work beyond or in addition to the Work required by the Contract Documents.

1.1.22 FIELD ORDER

See Article 7.2 of the General Conditions.

1.1.23 FINAL COMPLETION

The term "Final Completion" means the date at which the Work has been fully completed in accordance with the requirements of the Contract Documents pursuant to Article 9.8.1 of the General Conditions.

1.1.24 GUARANTEE TO REPAIR PERIOD

See Article 12.2 of the General Conditions.

1.1.25 HAZARDOUS MATERIAL

The term "Hazardous Material" means any substance or material identified as hazardous under any California or federal statute governing handling, disposal and/or cleanup of any such substance or material.

1.1.26 PROJECT

The term "Project" means the Work of the Contract and all other work, labor, equipment, and materials necessary to accomplish the Project. The Project may include construction by University or by Separate Contractors.

1.1.27 SEPARATE CONTRACTOR

The term "Separate Contractor" means a person or firm under separate contract with University performing other work related to the Project.

1.1.28 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

See Article 3.12 of the General Conditions.

1.1.29 SPECIFICATIONS

The term "Specifications" means that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.30 SUBCONTRACTOR

The term "Subcontractor" means a person or firm that has a contract with Contractor or with a Subcontractor to perform a portion of the Work. Unless otherwise specifically provided, the term Subcontractor includes Subcontractors of all tiers.

1.1.31 SUBSTANTIAL COMPLETION  
See Article 9.7 of the General Conditions.

1.1.32 SUPERINTENDENT  
The term "Superintendent" means the person designated by Contractor to represent Contractor at the Project site in accordance with Article 3.

1.1.33 TIER  
The term "tier" means the contractual level of a Subcontractor or supplier with respect to Contractor. For example, a first-tier Subcontractor is under subcontract with Contractor, a second-tier Subcontractor is under subcontract with a first-tier Subcontractor, and so on.

1.1.34 UNEXCUSABLE DELAY  
The term "Unexcusable Delay" means a delay that does not entitle the Contractor to an adjustment of the Contract Sum and does not entitle the Contractor to an adjustment of the Contract Time.

1.1.35 UNILATERAL CHANGE ORDER.  
See Article 7.2 of the General Conditions.

1.1.36 UNIVERSITY  
The term "University" means The Regents of the University of California.

1.1.37 UNIVERSITY'S BUILDING OFFICIAL  
The term "University's Building Official" means the individual the University has designated to act in the capacity as the "Building Official" as defined by the California Building Standards Code. The University's Building Official will determine whether the Work complies with Applicable Code Requirements and will determine whether and when it is appropriate to issue a Certificate of Occupancy.

1.1.38 UNIVERSITY'S REPRESENTATIVE  
The term "University's Representative" means the person or firm identified as such in the Agreement.

1.1.39 UNIVERSITY'S RESPONSIBLE ADMINISTRATOR  
The term "University's Responsible Administrator" means the person, or his or her authorized designee, who is authorized to execute the Agreement, Change Orders, Field Orders, and other applicable Contract Documents on behalf of the University.

1.1.40 WORK  
The term "Work" means all construction, services and other requirements of the Contract Documents as modified by Change Order, whether completed or partially completed, and includes all labor, materials, equipment, tools, and services provided or to be provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a part of the Project.

## 1.2 OWNERSHIP AND USE OF CONTRACT DOCUMENTS

1.2.1 The Contract Documents and all copies thereof furnished to or provided by Contractor are the property of the University and are not to be used on other work.

## 1.3 INTERPRETATION

1.3.1 The Contract Documents are complementary and what is required by one shall be as binding as if required by all. In the case of conflict between terms of the Contract Documents, the following order of precedence shall apply:

- .1 The Agreement,
- .2 The Supplementary Conditions,
- .3 The General Conditions,
- .4 The Specifications,
- .5 The Drawings.

1.3.2 With respect to the Drawings, figured dimensions shall control over scaled measurements and specific details shall control over typical or standard details.

1.3.3 With respect to the Contract Documents, Addenda shall govern over other portions of the Contract Documents to the extent specifically noted; subsequent Addenda shall govern over prior Addenda only to the extent specifically noted.

1.3.4 Organization of the Specifications into various subdivisions and the arrangement of the Drawings shall not control Contractor in dividing the Work among Subcontractors or in establishing the extent of work to be performed by any trade.

1.3.5 Unless otherwise stated in the Contract Documents, technical words and abbreviations contained in the Contract Documents are used in accordance with commonly understood construction industry meanings; and non-technical words and abbreviations are used in accordance with their commonly understood meanings.

1.3.6 The Contract Documents may omit modifying words such as "all" and "any," and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement. The use of the word "including," when following any general statement, shall not be construed to limit such statement to specific items or matters set forth immediately following such word or to similar items or matters, whether or not nonlimiting language (such as "without limitation," "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement.

1.3.7 Whenever the context so requires, the use of the singular number shall be deemed to include the plural and vice versa. Each gender shall be deemed to include any other gender, and each shall include corporation, partnership, trust, or other legal entity whenever the context so requires. The captions and headings of the various subdivisions of the Contract Documents are intended only for reference and convenience and in no way define, limit, or prescribe the scope or intent of the Contract Documents or any subdivision thereof.

## **ARTICLE 2 UNIVERSITY**

### **2.1 INFORMATION AND SERVICES PROVIDED BY UNIVERSITY**

2.1.1 If required for performance of the Work, as determined by University's Representative, University will make available a survey describing known physical characteristics, boundaries, easements, and utility locations for the Project site.

2.1.2 University is not subject to any requirement to obtain or pay for local building permits, inspection fees, plan checking fees, or certain utility fees. Except as otherwise provided in the Contract Documents, University will obtain and pay for any utility permits, demolition permits, easements, and government approvals for the use or occupancy of permanent structures required in connection with the Work.

2.1.3 Contractor will be furnished, free of charge, such copies of the Contract Documents as University deems reasonably necessary for execution of the Work.

### **2.2 ACCESS TO PROJECT SITE**

2.2.1 University will provide, no later than the date designated in the Contract Schedule accepted by University's Representative, access to the lands and facilities upon which the Work is to be performed, including such access and other lands and facilities designated in the Contract Documents for use by Contractor.

### **2.3 UNIVERSITY'S RIGHT TO STOP THE WORK**

2.3.1 If Contractor fails to correct Defective Work as required by Article 12.2 or fails to perform the Work in accordance with the Contract Documents, University or University's Representative may direct Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated by Contractor. Contractor shall not be entitled to any adjustment of Contract Time or Contract Sum as a result of any such

order. University and University's Representative have no duty or responsibility to Contractor or any other party to exercise the right to stop the Work.

#### **2.4 UNIVERSITY'S RIGHT TO CARRY OUT THE WORK**

2.4.1 If Contractor fails to carry out the Work in accordance with the Contract Documents, fails to provide sufficient labor, materials, equipment, tools, and services to maintain the Contract Schedule, or otherwise fails to comply with any material term of the Contract Documents, and, after receipt of written notice from University, fails within 2 days, excluding Saturdays, Sundays and legal holidays, or within such additional time as the University may specify, to correct such failure, University may, without prejudice to other remedies University may have, correct such failure at Contractor's expense. In such case, University will be entitled to deduct from payments then or thereafter due Contractor the cost of correcting such failure, including without limitation compensation for the additional services and expenses of University's consultants made necessary thereby. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the additional amount to University.

#### **2.5 UNIVERSITY'S RIGHT TO REPLACE UNIVERSITY'S REPRESENTATIVE**

2.5.1 University may at any time and from time to time, without prior notice to or approval of Contractor, replace University's Representative with a new University's Representative. Upon receipt of notice from University informing Contractor of such replacement and identifying the new University's representative, Contractor shall recognize such person or firm as University's Representative for all purposes under the Contract Documents.

### **ARTICLE 3 CONTRACTOR**

#### **3.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

3.1.1 Contractor and its Subcontractors shall review and compare each of the Contract Documents with the others and with information furnished or made available by University, and shall promptly report in writing to University's Representative any errors, inconsistencies, or omissions in the Contract Documents or inconsistencies with Applicable Code Requirements observed by Contractor or its Subcontractors.

3.1.2 Contractor and its Subcontractors shall take field measurements, verify field conditions, and carefully compare with the Contract Documents such field measurements, conditions, and other information known to Contractor before commencing the Work. Errors, inconsistencies, or omissions discovered at any time shall be promptly reported in writing to University's Representative.

3.1.3 If Contractor and its Subcontractors performs any construction activity involving an error, inconsistency, or omission referred to in Articles 3.1.1 and 3.1.2, without giving the notice required in those Articles and obtaining the written consent of University's Representative, Contractor shall be responsible for the resultant losses, including, without limitation, the costs of correcting Defective Work.

#### **3.2 SUPERVISION AND CONSTRUCTION PROCEDURES**

3.2.1 Contractor shall supervise, coordinate, and direct the Work using Contractor's best skill and attention. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures, and the coordination of all portions of the Work.

3.2.2 Contractor shall be responsible to University for acts and omissions of Contractor's agents, employees, and Subcontractors, and their respective agents and employees.

3.2.3 Contractor shall not be relieved of its obligation to perform the Work in accordance with the Contract Documents either by acts or omissions of University or University's Representative in the administration of the Contract, or by tests, inspections, or approvals required or performed by persons or firms other than Contractor.

3.2.4 Contractor shall be responsible for inspection of all portions of the Work, including those portions already performed under this Contract, to determine that such portions conform to the requirements of the Contract and are ready to receive subsequent Work.



3.2.5 Contractor shall at all times maintain good discipline and order among its employees and Subcontractors. Contractor shall provide competent, fully qualified personnel to perform the Work.

### **3.3 LABOR AND MATERIALS**

3.3.1 Unless otherwise provided in the Contract, Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and Final Completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

### **3.4 CONTRACTOR'S WARRANTY**

3.4.1 Contractor warrants to University that all materials and equipment used in or incorporated into the Work will be of good quality, new, and free of liens, claims, and security interests of third parties; that the Work will be of good quality and free from defects; and that the Work will conform with the requirements of the Contract. If required by University's Representative, Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

### **3.5 TAXES**

3.5.1 Contractor shall pay all sales, consumer, use, and similar taxes for the Work or portions thereof provided by Contractor.

### **3.6 PERMITS, FEES, AND NOTICES**

3.6.1 Except for the permits and approvals which are to be obtained by University or the requirements with respect to which University is not subject as provided in Article 2.1.2, Contractor shall secure and pay for all permits, approvals, government fees, licenses, and inspections necessary for the proper execution and performance of the Work. Contractor shall deliver to University all original licenses, permits, and approvals obtained by Contractor in connection with the Work prior to the final payment or upon termination of the Contract, whichever is earlier.

### **3.7 APPLICABLE CODE REQUIREMENTS**

3.7.1 Contractor shall perform the Work in accordance with the following Applicable Code Requirements:

- .1 All laws, statutes, the most recent building codes, ordinances, rules, regulations, and lawful orders of all public authorities having jurisdiction over University, Contractor, any Subcontractor, the Project, the Project site, the Work, or the prosecution of the Work.
- .2 All requirements of any insurance company issuing insurance required hereunder.
- .3 The Federal Occupational Safety and Health Act and all other Applicable Code Requirements relating to safety.
- .4 Applicable titles in the State of California Code of Regulations.
- .5 Applicable sections in the State of California Labor Code.
- .6 All Applicable Code Requirements relating to nondiscrimination, payment of prevailing wages, payroll records, apprentices, and work day.

Without limiting the foregoing, Contractor shall comply with the provisions regarding nondiscrimination, payment of prevailing wages, payroll records, apprentices, and work day set forth in Article 14.

3.7.2 Contractor shall comply with and give notices required by all Applicable Code Requirements, including all environmental laws and all notice requirements under the State of California Safe Drinking Water and Enforcement Act of 1986 (State of California Health and Safety Code Section 25249.5 and applicable sections that follow). Contractor shall promptly notify University's Representative in writing if Contractor becomes aware during the performance of the Work that the Contract Documents are at variance with Applicable Code Requirements.

3.7.3 If Contractor performs Work which it knows or should know is contrary to Applicable Code Requirements, without prior notice to University and University's Representative, Contractor shall be responsible for such Work and any resulting damages including, without limitation, the costs of correcting Defective Work.

### **3.8 SUPERINTENDENT**

3.8.1 Contractor shall employ a competent Superintendent satisfactory to University who shall be in attendance at the Project site at all times during the performance of the Work. Superintendent shall represent Contractor and communications given to and received from Superintendent shall be binding on Contractor.

3.8.2 Contractor shall provide the Key Personnel, in addition to the Superintendent, as named in the Key Personnel Exhibit to this Contract. Substitution or replacement of any named individual requires the written approval of the University's Representative and approval will be at the sole discretion of University. Failure to maintain a Superintendent on the Project site at all times Work is in progress shall be considered a material breach of this Contract, entitling University to terminate the Contract or alternatively, issue a stop Work order until the Superintendent is on the Project site. If, by virtue of issuance of said stop Work order, Contractor fails to complete the Contract on time, Contractor will be assessed Liquidated Damages in accordance with the Agreement.

3.8.3 The Superintendent approved for the Project must be able to read, write and verbally communicate in English.

3.8.4 The Superintendent may not perform the Work of any trade, pick-up materials, or perform any Work not directly related to the supervision and coordination of the Work at the Project site when Work is in progress.

### **3.9 SCHEDULES REQUIRED OF CONTRACTOR**

3.9.1 Contractor shall submit a Preliminary Contract Schedule to University's Representative in the form and within the time limit required by the Specifications. University's Representative will review the Preliminary Contract Schedule with Contractor within the time limit required by the Specifications, or, if no such time period is specified, within a reasonable period of time.

3.9.2 Contractor shall submit a Contract Schedule and updated Contract Schedules to University's Representative in the form and within the time limits required by the Specifications and acceptable to University's Representative. University's Representative will determine acceptability of the Contract Schedule and updated Contract Schedules within the time limits required by the Specifications, or if no such time period is specified, within a reasonable period of time. If University's Representative deems the Contract Schedule or updated Contract Schedule unacceptable, it shall specify in writing to Contractor the basis for its objection.

3.9.3 The Preliminary Contract Schedule, the Contract Schedule, and updated Contract Schedules shall represent a practical plan to complete the Work within the Contract Time. Schedules showing the Work completed in less than the Contract Time may be acceptable if judged by University's Representative to be practical. Schedules showing the Work completed beyond the Contract Time may be submitted under the following circumstances:

.1 If accompanied by a Change Order Request seeking an adjustment of the Contract Time consistent the requirements of paragraph 8.4 for Adjustment of the Contract Time for Delay.; or

.2 If the Contract Time has passed, or if it is a practical impossibility to complete the Work within the Contract Time, then the updated Contract Schedule or fragnet schedule shall show completion at the earliest practical date.

University's Representative will timely review the updated Contract Schedule or Fragnet Schedule submitted by Contractor. If University's Representative determines that additional supporting data are necessary to fully evaluate the updated Contract Schedule or Fragnet Schedule, University's Representative will request such additional supporting data in writing. Such data shall be furnished no later than 10 days after the date of such request. University's Representative will render a decision promptly and in any case within 30 days after the later of the receipt of the updated Contract Schedule or Fragnet Schedule or the deadline for furnishing such additional supporting data. Failure of University's Representative to render a decision by the applicable deadline will be deemed a decision denying approval of the updated Contract Schedule or Fragnet Schedule.

Acceptance of any schedule showing completion beyond the Contract Time by University's Representative shall not change the Contract Time and is without prejudice to any right of the University. The Contract Time,

not the Contract Schedule, shall control in the determination of liquidated damages payable by Contractor under Article 4 and Article 5 of the Agreement and in the determination of any delay under Article 8 of the General Conditions.

3.9.4 If a schedule showing the Work completed in less than the Contract Time is accepted, Contractor shall not be entitled to extensions of the Contract Time for Excusable Delays or Compensable Delays or to adjustments of the Contract Sum for Compensable Delays until such delays extend the Final Completion of the Work beyond the expiration of the Contract Time.

3.9.5 Contractor shall prepare and keep current to the reasonable satisfaction of University's Representative, a Submittal Schedule in the form contained in the Exhibits, for each submittal, as required by the Specifications, and that are coordinated with the other activities in the Contract Schedule.

3.9.6 The Preliminary Contract Schedule, Contract Schedule, and the Updated Contract Schedules shall meet the following requirements:

- .1 Schedules must be suitable for monitoring progress of the Work.
- .2 Schedules must provide necessary data about the timing for University decisions and University furnished items.
- .3 Schedules must be in sufficient detail to demonstrate adequate planning for the Work.
- .4 Schedules must represent a practical plan to perform and complete the Work within the Contract Time.

3.9.7 University's Representative's review of the form and general content of the Preliminary Contract Schedule, Contract Schedule, and Updated Contract Schedules is for the purpose of determining if the above-listed requirements have been satisfied.

3.9.8 Contractor shall plan, develop, supervise, control, and coordinate the performance of the Work so that its progress and the sequence and timing of Work will permit its completion within the Contract Time, any Contract milestones and any Contract phases.

3.9.9 In preparing the Preliminary Contract Schedule, the Contract Schedule, and updated Contract Schedules, Contractor shall obtain such information and data from Subcontractors as may be required to develop a reasonable and appropriate schedule for performance of the work and shall provide such information and data to the University's Representative upon request. Contractor shall continuously obtain from Subcontractors information and data about the planning for and progress of the Work and the delivery of equipment, shall coordinate and integrate such information and data into updated Contract Schedules, as appropriate, and shall monitor the progress of the Work and the delivery of equipment.

3.9.10 Contractor shall act as the expeditor of potential and actual delays, interruptions, hindrances, or disruptions for its own forces and those forces of Subcontractors, regardless of tier.

3.9.11 Contractor shall cooperate with University's Representative in the development of the Contract Schedule and updated Contract Schedules. University's Representative's acceptance of or its review comments about any schedule or scheduling data shall not relieve Contractor from its sole responsibility to plan for, perform, and complete the Work within the Contract Time. Acceptance of or review comments about any schedule shall not transfer responsibility for any schedule to University's Representative or University nor imply their agreement with (1) any assumption upon which such schedule is based or (2) any matter underlying or contained in such schedule. Failure of University's Representative to discover errors or omissions in schedules that it has reviewed, or to inform Contractor that Contractor, Subcontractors, or others are behind schedule, or to direct or enforce procedures for complying with the Contract Schedule shall not relieve Contractor from its sole responsibility to perform and complete the Work within the Contract Time and shall not be a cause for an adjustment of the Contract Time or the Contract Sum.

### **3.10 AS-BUILT DOCUMENTS**

3.10.1 Contractor shall maintain one set of As-built drawings and specifications, which shall be kept up to date during the Work of the Contract. All changes which are incorporated into the Work which differ from the documents as drawn and written shall be noted on the As-built set. Notations shall reflect the actual materials, equipment and installation methods used for the Work and each revision shall be initialed and dated by Superintendent. Prior to filing of the Notice of Completion each drawing and the specification cover shall be signed by Contractor and dated attesting to the completeness of the information noted therein. As-built

Documents shall be turned over to the University's Representative and shall become part of the Record Documents.

### **3.11 DOCUMENTS AND SAMPLES AT PROJECT SITE**

3.11.1 Contractor shall maintain the following at the Project site:

- .1 One as-built copy of the Contract Documents, in good order and marked to record current changes and selections made during construction.
- .2 The current accepted Contract Schedule.
- .3 Shop Drawings, Product Data, and Samples.
- .4 All other required submittals.

These shall be available to University's Representative and shall be delivered to University's Representative for submittal to University upon the earlier of Final Completion or termination of the Contract.

### **3.12 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

3.12.1 Definitions:

- .1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by Contractor or a Subcontractor to illustrate some portion of the Work.
- .2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by Contractor to illustrate or describe materials or equipment for some portion of the Work.
- .3 Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

3.12.2 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate, for those portions of the Work for which submittals are required, how Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

3.12.3 Contractor shall review, approve, and submit to University's Representative Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of University or of Separate Contractors. Submittals made by Contractor which are not required by the Contract Documents may be returned without action by University's Representative.

3.12.4 Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples, or similar submittals until the respective submittal has been reviewed by University's Representative and no exceptions have been taken by University's Representative. Such Work shall be in accordance with approved submittals and the Contract Documents.

3.12.5 By approving and submitting Shop Drawings, Product Data, Samples, and similar submittals, Contractor represents that it has determined or verified materials and field measurements and conditions related thereto, and that it has checked and coordinated the information contained within such submittals with the requirements of the Contract Documents and Shop Drawings for related Work.

3.12.6 If Contractor discovers any conflicts, omissions, or errors in Shop Drawings or other submittals, Contractor shall notify University's Representative and receive instruction before proceeding with the affected Work.

3.12.7 Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by University's Representative's review of Shop Drawings, Product Data, Samples, or similar submittals, unless Contractor has specifically informed University's Representative in writing of such deviation at the time of submittal and University's Representative has given written approval of the specific deviation. Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by University's Representative's review, acceptance, comment, or approval thereof.

3.12.8 Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data,

Samples, or similar submittals, to revisions other than those requested by University's Representative on previous submittals.

### **3.13 USE OF SITE AND CLEAN UP**

3.13.1 Contractor shall confine operations at the Project site to areas permitted by law, ordinances, permits, and the Contract Documents. Contractor shall not unreasonably encumber the Project site with materials or equipment.

3.13.2 Contractor shall, during performance of the Work, keep the Project site and surrounding area free from the accumulation of excess dirt, waste materials, and rubbish caused by Contractor. Contractor shall remove all excess dirt, waste material, and rubbish caused by the Contractor; tools; equipment; machinery; and surplus materials from the Project site and surrounding area at the completion of the Work.

3.13.3 Personnel of Contractor and Subcontractors shall not occupy, live upon, or otherwise make use of the Project site during any time that Work is not being performed at the Project site, except as otherwise provided in the Contract Documents.

### **3.14 CUTTING, FITTING, AND PATCHING**

3.14.1 Contractor shall do all cutting, fitting, or patching of the Work required to make all parts of the Work come together properly and to allow the Work to receive or be received by work of Separate Contractors shown upon, or reasonably implied by, the Contract Documents.

3.14.2 Contractor shall not endanger the Work, the Project, or adjacent property by cutting, digging, or otherwise. Contractor shall not cut or alter the work of any Separate Contractor without the prior consent of University's Representative.

### **3.15 ACCESS TO WORK**

3.15.1 University, University's Representative, their consultants, and other persons authorized by University will at all times have access to the Work wherever it is in preparation or progress. Contractor shall provide safe and proper facilities for such access and for inspection.

### **3.16 ROYALTIES AND PATENTS**

3.16.1 Contractor shall pay all royalties and license fees required for the performance of the Work. Contractor shall defend suits or claims resulting from Contractor's or any Subcontractor's infringement of patent rights and shall Indemnify, defend and hold harmless University and University's Representative from losses on account thereof.

### **3.17 DIFFERING SITE CONDITIONS**

3.17.1 If Contractor encounters any of the following conditions at the site, Contractor shall immediately notify the University's Representative in writing of the specific differing conditions before they are disturbed and before any affected Work is performed, and permit investigation of the conditions:

- .1 Subsurface or latent physical conditions at the site (including Hazardous Materials) which differ materially from those indicated in this Contract, or if not indicated in this Contract, in the Information Available to Bidders; or
- .2 Unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

3.17.2 Contractor shall be entitled to an adjustment to the Contract Sum and/or Contract Time as the result of extra costs and/or delays resulting from a materially differing site condition, if and only if Contractor fulfills the following conditions:

- .1 Contractor fully complies with Article 3.17.1; and

- .2 Contractor fully complies with Article 4 (including the timely filing of a Change Order Request and all other requirements for Change Orders Requests and Claims).

3.17.3 Adjustments to the Contract Sum and/or Contract Time shall be subject to the procedures and limitations set forth in Articles 7 and 8.

### **3.18 CONCEALED, UNFORESEEN, OR UNKNOWN CONDITIONS OR EVENTS**

3.18.1 Except and only to the extent provided otherwise in Articles 3.17, 7 and 8 of the General Conditions, by signing the Agreement, Contractor agrees:

- .1 To bear the risk of concealed, unforeseen or unknown conditions or events, if any, which may be encountered in performing the Contract; and
- .2 That Contractor's bid for the Contract was made with full knowledge of this risk.

In agreeing to bear the risk of concealed, unforeseen or unknown conditions or events, Contractor understands that, except and only to the extent provided otherwise in Articles 3.17, 7 and 8, concealed, unforeseen or unknown conditions or events shall not excuse Contractor from its obligation to achieve Final Completion of the Work within the Contract Time, and shall not entitle the Contractor to an adjustment of the Contract Sum.

3.18.2 If Contractor encounters concealed, unforeseen or unknown conditions or events that may require a change to the design shown in the Contract Documents, Contractor shall immediately notify University's Representative in writing such that University's Representative can determine if a change to the design is required. Contractor shall be liable to University for any extra costs incurred as the result of Contractor's failure to immediately give such notice.

3.18.3 If, as the result of concealed, unforeseen or unknown conditions or events, the University issues a Change Order or Field Order that changes the design from the design depicted in the Contract Documents, Contractor shall be entitled, subject to compliance with all the provisions of the Contract, including those set forth in Articles 4, 7 and 8, to an adjustment of the Contract Sum and/or Contract Time, for the cost and delay resulting from implementing the changes to the design. Except as provided in this Article 3.18.3, or as may be expressly provided otherwise in the Contract, there shall be no adjustment of the Contract Sum and/or Contract Time as a result of concealed, unforeseen or unknown conditions or events. .

3.18.4 Contractor shall, as a condition precedent to any adjustment in Contract Sum or Contract Time under Article 3.18.3, fully comply with Article 4 (including the timely filing of a Change Order Request and all other requirements for Change Orders Requests and Claims).

### **3.19 HAZARDOUS MATERIALS**

3.19.1 The University shall not be responsible for any Hazardous Material brought to the site by the Contractor.

3.19.2 If the Contractor: (i) introduces and/or discharges a Hazardous Material onto the site in a manner not specified by the Contract Documents; and/or (ii) disturbs a Hazardous Material identified in the Contract Documents, the Contractor shall hire a qualified remediation contractor at Contractor's sole cost to eliminate the condition as soon as possible. Under no circumstance shall the Contractor perform Work for which it is not qualified. University, in its sole discretion, may require the Contractor to retain at Contractor's cost an independent testing laboratory.

3.19.3 If the Contractor encounters a Hazardous Material which may cause foreseeable injury or damage, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such material or substance (except in an emergency situation); and (iii) notify University (and promptly thereafter confirm such notice in writing)

3.19.4 Subject to Contractor's compliance with Article 3.19.3, the University shall verify the presence or absence of the Hazardous Material reported by the Contractor, except as qualified under Section 3.19.1 and 3.19.3, and, in the event such material or substance is found to be present, verify that the levels of the hazardous material are below OSHA Permissible Exposure Levels and below levels which would classify the material as a state of California or federal hazardous waste. When the material falls below such levels, Work

in the affected area shall resume upon direction by the University. The Contract Time and Sum shall be extended appropriately as provided in Articles 7 and 8.

3.19.5 The University shall indemnify and hold harmless the Contractor from and against claims, damages, losses and expenses, arising from a Hazardous Material on the Project site, if such Hazardous Material: (i) was not shown on the Contract Documents or Information Available to Bidders; (ii) was not brought to the site by Contractor; and (iii) exceeded OSHA Permissible Exposure Levels or levels which would classify the material as a state of California or federal hazardous waste. The indemnity obligation in this Article shall not apply to:

- .1 Claims, damages, losses or expenses arising from the breach of contract, negligence or willful misconduct of Contractor, its suppliers, its Subcontractors of all tiers and/or any persons or entities working under Contractor; and
- .2 Claims, damages, losses or expenses arising from a Hazardous Material subject to Article 3.19.2.

3.19.6 In addition to the requirements in Article 3.22, Contractor shall indemnify and hold harmless the University from and against claims, damages, losses and expenses, arising from a Hazardous Material on the Project site, if such Hazardous Material exceeded OSHA Permissible Exposure Levels or levels which would classify the material as a state of California or federal hazardous waste, and was either i) shown on the Contract Documents or Information Available to Bidders; or (ii) brought to the site by Contractor. Nothing in this paragraph shall obligate the Contractor to indemnify University in the event of the sole negligence of the University, its officers, agents, or employees.

### **3.20 INFORMATION AVAILABLE TO BIDDERS**

3.20.1 Any information provided pursuant to INFORMATION AVAILABLE TO BIDDERS is subject to the following provisions:

- .1 The information is made available for the convenience of Bidders and is not a part of the Contract.
- .2 The Contractor may rely on written descriptions of physical conditions included in the information to the extent such reliance is reasonable.
- .3 Other components of the information, including but not limited to recommendations, may not be relied upon by Contractor. University shall not be responsible for any interpretation of or conclusion drawn from the other components of the information by the Contractor.

### **3.21 LIABILITY FOR AND REPAIR OF DAMAGED WORK**

3.21.1 Contractor shall be liable for any and all damages and losses to the Project (whether by fire, theft, vandalism, earthquake or otherwise) prior to University's acceptance of the Project as fully completed except that Contractor shall not be liable for damages and losses to the Project caused by earthquake in excess of magnitude 3.5 on the Richter Scale, tidal wave, or flood, provided that the damages or losses were not caused in whole or in part by the negligent acts or omissions of Contractor, its officers, agents or employees (including all Subcontractors and suppliers of all tiers). As used herein, "flood" shall have the same meaning as in the builder's risk property insurance.

3.21.2 Contractor shall promptly repair and replace any Work or materials damaged or destroyed for which the Contractor is liable under Article 3.21.1.

### **3.22 INDEMNIFICATION**

3.22.1 Contractor shall indemnify, defend and hold harmless University, University's consultants, University's Representative, University's Representative's consultants, and their respective directors, officers, agents, and employees from and against losses (including without limitation the cost of repairing defective work and remedying the consequences of defective work) arising out of, resulting from, or relating to the following:

- .1 The failure of Contractor to perform its obligations under the Contract.
- .2 The inaccuracy of any representation or warranty by Contractor given in accordance with or contained in the Contract Documents.
- .3 Any claim of damage or loss by any Subcontractor against University arising out of any alleged act or omission of Contractor or any other Subcontractor, or anyone

- directly or indirectly employed by Contractor or any Subcontractor.
- .4 Any claim of damage or loss resulting from Hazardous Materials introduced, discharged, or disturbed by Contractor as required per Article 3.19.6.

3.22.2 The University shall not be liable or responsible for any accidents, loss, injury (including death) or damages happening or accruing during the term of the performance of the Work herein referred to or in connection therewith, to persons and/or property, and Contractor shall fully indemnify, defend and hold harmless University and protect University from and against the same as provided in paragraph 3.22.1 above. In addition to the liability imposed by law upon the Contractor for damage or injury (including death) to persons or property by reason of the negligence of the Contractor, its officers, agents, employees or Subcontractors, which liability is not impaired or otherwise affected hereby, the Contractor shall defend, indemnify, hold harmless, release and forever discharge the University, its officers, employees, and agents from and against and waive any and all responsibility of same for every expense, liability, or payment by reason of any damage or injury (including death) to persons or property suffered or claimed to have been suffered through any negligent act, omission, or willful misconduct of the Contractor, its officers, agents, employees, or any of its Subcontractors, or anyone directly or indirectly employed by either of them or from the condition of the premises or any part of the premises while in control of the Contractor, its officers, agents, employees, or any of its Subcontractors or anyone directly or indirectly employed by either of them, arising out of the performance of the Work called for by this Contract. Contractor agrees that this indemnity and hold harmless shall apply even in the event of negligence of University, its officers, agents, or employees, regardless of whether such negligence is contributory to any claim, demand, loss, damage, injury, expense, and/or liability; but such indemnity and hold harmless shall not apply (i) in the event of the sole negligence of University, its officers, agents, or employees; or (ii) to the extent that the University shall indemnify and hold harmless the Contractor for Hazardous Materials pursuant to Article 3.19.5 .

3.22.3 In claims against any person or entity indemnified under this Article 3.22 that are made by an employee of Contractor or any Subcontractor, a person indirectly employed by Contractor or any Subcontractor, or anyone for whose acts Contractor or any Subcontractor may be liable, the indemnification obligation under this Article 3.22 shall not be limited by any limitation on amount or type of damages, compensation, or benefits payable by or for Contractor or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

3.22.4 The indemnification obligations under this Article 3.22 shall not be limited by any assertion or finding that the person or entity indemnified is liable by reason of a non-delegable duty.

3.22.5 Contractor shall indemnify University from and against Losses resulting from any claim of damage made by any Separate Contractor against University arising out of any alleged acts or omissions of Contractor, any Subcontractor, anyone directly or indirectly employed by either of them, or anyone for whose acts either of them may be liable.

3.22.6 Contractor shall indemnify Separate Contractors from and against Losses arising out of the negligent acts, omissions, or willful misconduct of Contractor, any Subcontractor, anyone directly or indirectly employed by either of them, or anyone for whose acts either of them may be liable.

#### **ARTICLE 4 ADMINISTRATION OF THE CONTRACT**

##### **4.1 ADMINISTRATION OF THE CONTRACT BY UNIVERSITY'S REPRESENTATIVE**

4.1.1 University's Representative will provide administration of the Contract as provided in the Contract Documents and will be the representative of University. University's Representative will have authority to act on behalf of University only to the extent provided in the Contract Documents.

4.1.2 University's Representative will have the right to visit the Project site at such intervals as deemed appropriate by the University's Representative. However, no actions taken during such Project site visit by University's Representative shall relieve Contractor of its obligations as described in the Contract Documents.

4.1.3 University's Representative will not have control over, will not be in charge of, and will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely Contractor's responsibility.

4.1.4 Except as otherwise provided in the Contract Documents or when direct communications have been



specifically authorized, University and Contractor shall communicate through University's Representative. Except when direct communication has been specifically authorized in writing by University Representative, communications by Contractor with University's consultants and University's Representative's consultants shall be through University's Representative. Communications by University and University's Representative with Subcontractors will be through Contractor. Communications by Contractor and Subcontractors with Separate Contractors shall be through University's Representative. Contractor shall not rely on oral or other non-written communications.

4.1.5 Based on University's Representative's Project site visits and evaluations of Contractor's Applications For Payment, University's Representative will recommend amounts, if any, due Contractor and will issue Certificates For Payment in such amounts.

4.1.6 University's Representative will have the authority to reject the Work, or any portion thereof, which does not conform to the Contract Documents. University's Representative will have the authority to stop the Work or any portion thereof. Whenever University's Representative considers it necessary or advisable for implementation of the intent of the Contract Documents, University's Representative will have the authority to require additional inspection or testing of the Work in accordance with the Contract Documents, whether or not such Work is fabricated, installed, or completed. However, no authority of University's Representative conferred by the Contract Documents nor any decision made in good faith either to exercise or not exercise such authority, will give rise to a duty or responsibility of University or University's Representative to Contractor, or any person or entity claiming under or through Contractor.

4.1.7 University's Representative will have the authority to conduct inspections as provided in the Contract Documents, to take Beneficial Occupancy and to determine the dates of Substantial Completion and Final Completion; will receive for review and approval any records, written warranties, and related documents required by the Contract Documents and assembled by Contractor; and will issue a final Certificate For Payment upon Contractor's compliance with the requirements of the Contract Documents.

4.1.8 University's Representative will be, in the first instance, the interpreter of the requirements of the Contract Documents and the judge of performance thereunder by Contractor. Should Contractor discover any conflicts, omissions, or errors in the Contract Documents; have any questions about the interpretation or clarification of the Contract Documents; question whether Work is within the scope of the Contract Documents; or question that Work required is not sufficiently detailed or explained, then, before proceeding with the Work affected, Contractor shall notify University's Representative in writing and request interpretation, clarification, or furnishing of additional detailed instructions. University's Representative's response to questions and requests for interpretations, clarifications, instructions, or decisions will be made with reasonable promptness. Should Contractor proceed with the Work affected before receipt of a response from University's Representative, any portion of the Work which is not done in accordance with University's Representative's interpretations, clarifications, instructions, or decisions shall be removed or replaced and Contractor shall be responsible for all resultant losses.

## **4.2 CONTRACTOR CHANGE ORDER REQUESTS**

4.2.1 Contractor may request changes to the Contract Sum and/or Contract Time for Extra Work, materially differing site conditions, or Delays to Final Completion of the Work.

4.2.2 Conditions precedent to obtaining an adjustment of the Contract Sum and/or Contract Time, payment of money, or other relief with respect to the Contract Documents, for any other reason, are:

.1 Timely submission of a Change Order Request that meets the requirements of Articles 4.2.3.1 and 4.2.3.2; and

.2 If requested, timely submission of additional informational requested by the University Representative pursuant to Article 4.2.3.3.

4.2.3 Change Order Request:

4.2.3.1 A Change Order Request will be deemed timely submitted if, and only if, it is submitted within 7 days of the date the Contractor discovers, or reasonably should discover the circumstances giving rise to the Change Order Request, unless additional time is allowed in writing by University's Representative for submission of the Change Order Request, provided that if :

- .1 the Change Order Request includes compensation sought by a Subcontractor; AND
- .2 the Contractor requests in writing to the University's Representative, within the 7-day time period, additional time to permit Contractor to conduct an appropriate review of the Subcontractor Change Order Request,

the time period for submission of the actual Change Order Request shall be extended by the number of days specified in writing by the University's Representative.

4.2.3.2 A Change Order Request must state that it is a Change Order Request, state and justify the reason for the request, and specify the amount of any requested adjustment of the Contract Sum, Contract Time, and/or other monetary relief. If the Contractor requests an adjustment to the Contract Sum or other monetary relief, the Contractor shall submit the following with the Change Order Request:

- .1 a completed Cost Proposal in the form contained in the Exhibits meeting the requirements of Article 7; OR
- .2 a partial Cost Proposal and a declaration of what required information is not then known to Contractor. If Contractor failed to submit a completed Cost Proposal with the Change Order Request, Contractor shall submit a completed Cost Proposal meeting the requirements of Article 7 within 7 days of the date the Contractor submitted the Change Order Request unless additional time is allowed by the University's Representative.

4.2.3.3 Upon request of University's Representative, Contractor shall submit such additional information as may be requested by University's Representative for the purpose of evaluating the Change Order Request. Such additional information may include:

- .1 If Contractor seeks an adjustment of the Contract Sum or other monetary relief, actual cost records for any changed or extra costs (including without limitation, payroll records, material and rental invoices and the like), shall be submitted by the deadline established by the University's Representative, who may require such actual cost records to be submitted and reviewed, on a daily basis, by the University's Representative and/or representatives of the University's Representative.
- .2 If Contractor seeks an adjustment of the Contract Time, written documentation demonstrating Contractor's entitlement to a time extension under Article 8.4, which shall be submitted within 15 days of the date requested. If requested, Contractor may submit a fragnet in support of its request for a time extension. The University may, but is not obligated to, grant a time extension on the basis of a fragnet alone which, by its nature, is not a complete schedule analysis. If deemed appropriate by University Representative, Contractor shall submit a more detailed schedule analysis in support of its request for a time extension.
- .3 If Contractor seeks an adjustment of the Contract Sum or other monetary relief for delay, written documentation demonstrating Contractor's entitlement to such an adjustment under Article 7.3.9, which shall be submitted within 15 days of the date requested.
- .4 Any other information requested by the University's Representative for the purpose of evaluating the Change Order Request, which shall be submitted by the deadline established by the University's Representative.

4.2.4 University's Representative will make a decision on a Change Order Request, within a reasonable time, after receipt of a Change Order Request. In the event the Change Order Request is submitted pursuant to Article 8.4.1, the University's Representative shall promptly review and accept or reject it within thirty (30) days. A final decision is any decision on a Change Order Request which states that it is final. If University's Representative issues a final decision denying a Change Order Request in whole or in part, Contractor may contest the decision by filing a timely Claim under the procedures specified in Article 4.4.

4.2.5 Contractor may file a written demand for a final decision by University's Representative on all or part of any Change Order Request as to which the University's Representative has not previously issued a final

decision pursuant to Article 4.2.4; such written demand may not be made earlier than the 30th day after submission of the Change Order Request. Within 30 days of receipt of the demand, University's Representative will issue a final decision on the Change Order Request. The University's Representative's failure to issue a decision within the 30-day period shall be treated as the issuance, on the last day of the 30-day period, of a final decision to deny the Change Order Request in its entirety.

#### 4.3 CLAIMS

4.3.1 The term "Claim" means a written demand or assertion by Contractor seeking an adjustment or interpretation of the terms of the Contract Documents, payment of money, extension of time, or other relief with respect to the Contract Documents, including a determination of disputes or matters in question between University and Contractor arising out of or related to the Contract Documents or the performance of the Work. However, the term "Claim" shall not include, and the Claims procedures provided under this Article 4, including but not limited to arbitration, shall not apply to the following:

- .1 Claims respecting penalties for forfeitures prescribed by statute or regulation which a government agency is specifically authorized to administer, settle, or determine.
- .2 Claims respecting personal injury, death, reimbursement, or other compensation arising out of or resulting from liability for personal injury or death.
- .3 Claims by University, except as set forth in Articles 4.5, 4.6, and 4.7.
- .4 Claims respecting stop payment notices.

4.3.2 A Claim arises upon the issuance of a written final decision denying in whole or in part Contractor's Change Order Request pursuant to Articles 4.2.4 and 4.2.5.

4.3.3 A Claim must include the following:

- .1 A statement that it is a Claim and a request for a decision pursuant to Article 4.5.
- .2 A detailed factual narrative of events fully describing the nature and circumstances giving rise to the Claim, including but not limited to, necessary dates, locations, and items of work affected.
- .3 A certification, executed by Contractor, that the claim is filed in good faith. The certification must be made on the Claim Certification form, included in the Exhibits to the Contract. The language of the Claim Certification form may not be modified.
- .4 A certification, executed by each Subcontractor claiming not less than 5% of the total monetary amount sought by the claim, that the subcontractor's portion of the claim is filed in good faith. The certification must be made on the Claim Certification form, included in the Exhibits to the Contract. The language of the Claim Certification form may not be modified.
- .5 A statement demonstrating that a Change Order Request was timely submitted as required by Article 4.2.3
- .6 If a Cost Proposal or declaration was required by Article 4.2.3, a statement demonstrating that the Cost Proposal or the declaration was timely submitted as required by Article 4.2.3.
- .7 A detailed justification for any remedy or relief sought by the Claim, including to the extent applicable, the following:
  - .1 If the Claim involves Extra Work, a detailed cost breakdown of the amounts claimed, including the items specified in Article 7.3.2. An estimate of the costs must be provided even if the costs claimed have not been incurred when the Claim is submitted. To the extent costs have been incurred when the Claim is submitted, the Claim must include actual cost records (including without limitation, payroll records, material and rental invoices and the like) demonstrating that costs claimed have actually been incurred. To the extent costs have not yet been incurred at the time the Claim is submitted, actual cost records must be submitted on a current basis not less than once a month during any periods costs are incurred. A cost record will be considered current if submitted within 30 days of the date the cost reflected in the record is incurred. At the request of the University's Representative, claimed extra costs may be subject to further verification procedures (such as having an inspector verify the performance of alleged Extra Work on a daily basis). The cost breakdown

- must include an itemization of costs for i) labor including workers' names, classifications, regular hours and overtime hours worked, dates worked, and other pertinent information; ii) materials stored or incorporated in the work including invoices, purchase orders, location of materials either stored or incorporated into the work, dates materials were transported to the project or incorporated into the work, and other pertinent information; and iii) itemization of machinery and equipment including make, model, hours of use, dates of use and equipment rental rates of any rented equipment.
- .2 If the Claim involves an extension of the Contract Time, written documentation demonstrating the Contractor's entitlement to a time extension under Article 8.4, including the specific dates for which a time extension is sought and the specific reasons for entitlement of a time extension.
- .3 If the Claim involves an adjustment of the Contract Sum for delay, written documentation demonstrating the Contractor's entitlement to such an adjustment under Article 7.3.9, including but not limited to, a detailed time impact analysis of the Contract Schedule. The Contract Schedule must demonstrate Contractor's entitlement to such an adjustment under Article 7.3.9.

#### **4.4 ASSERTION OF CLAIMS**

4.4.1 Claims by Contractor shall be first submitted to University's Representative for decision.

4.4.2 Notwithstanding the making of any Claim or the existence of any dispute regarding any Claim, unless otherwise directed by University's Representative, Contractor shall not cause any delay, cessation, or termination in or of Contractor's performance of the Work, but shall diligently proceed with performance of the Work in accordance with the Contract Documents.

4.4.3 Contractor shall submit a Claim in writing, together with all supporting data specified in Article 4.3.3, to University's Representative as soon as possible but not later than 30 days after the date the Claim arises under Article 4.3.2, provided that after written notification to the University's Representative within such time period, the time period for submission of the Claim shall be extended by the number of days specified in writing by the University's Representative where the Claim includes compensation sought by a Subcontractor and the Contractor requests an extension of time to permit it to discharge its responsibilities to conduct an appropriate review of the Subcontractor claim.

4.4.4 Strict compliance with the requirements of Articles 4.2, 4.3 and 4.4 are conditions precedent to Contractor's right to an informal conference to meet and confer to resolve a Claim, mediate a Claim, or arbitrate or litigate a Claim. Contractor specifically agrees to assert no Claims via an informal conference, mediation, arbitration or litigation unless there has been strict compliance with Articles 4.2, 4.3, and 4.4. The failure of Contractor to strictly comply with the requirements of Articles 4.2, 4.3 and 4.4 constitutes a failure by Contractor to exhaust its administrative remedies with the University, thereby denying any court or arbitration panel of jurisdiction to adjudicate the Claim.

#### **4.5 DECISION OF UNIVERSITY'S REPRESENTATIVE ON CLAIMS**

4.5.1 University's Representative will timely review Claims submitted by Contractor. If University's Representative determines that additional supporting data are necessary to fully evaluate a Claim, University's Representative will request such additional supporting data in writing. Such data shall be furnished no later than 10 days after the date of such request. University's Representative will render a decision promptly and in any case within 30 days after the later of the receipt of the Claim or the deadline for furnishing such additional supporting data; provided that, if the amount of the Claim is in excess of \$50,000, the aforesaid 30-day period shall be 45 days. Failure of University's Representative to render a decision by the applicable deadline will be deemed a decision denying the Claim on the date of the deadline, unless, upon receipt of a Claim, Contractor and University mutually agree to extend the time periods provided herein, or unless otherwise extended by law. The decision of University's Representative will be final and binding unless appealed in accordance with Articles 4.5.2, 4.6, and 4.7. The University's Representative's decision on a Claim or dispute will include a written statement both identifying all disputed and undisputed portions of the Claim and substantially including the following:

"This is a decision under Article 4.5 of the General Conditions of your contract. If you are dissatisfied with the decision, and if you complied with the procedural requirements for asserting claims specified in Article 4 of the General Conditions of your contract, you may have the right to demand in writing an informal conference to meet and confer for settlement of any remaining issues in dispute, following which, if still dissatisfied, you may demand in writing a further resolution via nonbinding mediation, after which you have the right to arbitrate or litigate this decision. If you fail to take appropriate action within 30 days of the date of this decision, the decision shall become final and binding and not subject to further appeal."

4.5.2 If either Contractor or University disputes University's Representative's decision on a Claim, then, within 30 days after the decision of University's Representative on the Claim, or, if no decision has been issued, within 30 days from the date of the applicable deadline in Article 4.5.1 for University Representative to render a decision, such party (the "Disputing Party") must provide written notice demanding an informal conference to meet and confer. University shall schedule the conference within 30 days upon receipt of the notice demanding an informal conference. The parties will attempt in good faith to resolve any controversy or Claim arising out of or relating to this Contract by negotiation at the conference.

#### **4.6 MEDIATION**

4.6.1 Within 10 business days following the informal conference to meet and confer stated in Article 4.5.2, if the Claim or any portion of the Claim remains in dispute, the University shall provide a written statement identifying the disputed and undisputed portions of the Claim. Within 30 days of receipt of the statement, if either Contractor or University disputes any portion of the Claim, then the Disputing Party must provide written notice to the non-disputing party demanding non-binding mediation. The Contractor and the University shall share the associated costs equally and shall mutually agree to a mediator within 10 business days. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim, with each party bearing the fees and costs of its respective mediator. Mediation shall include, but not be limited to, neutral evaluation, a dispute review board, or other negotiation or evaluation through an independent third party or board. The Contractor and the University may mutually agree to waive any individual mediation in writing and proceed to arbitration or litigation pursuant to this Contract.

#### **4.7 LITIGATION AND ARBITRATION**

4.7.1 Either party may provide a written notice of its election to arbitrate or provide written notice of its election to litigate the Claim within 30 days after the mediation pursuant to Article 4.6.1, or, if the parties mutually agreed in writing to waive mediation, within 30 days after the agreement is signed by both parties.

4.7.2 If a notice of election to arbitrate or litigate is not given by either party within 30 days pursuant to Article 4.7.1, University's Representative's decision on the Claim will be final and binding and not subject to appeal or challenge.

4.7.3 If the Disputing Party gives timely notice of its election to arbitrate the University's Representative's decision on a Claim, Disputing Party shall have the right, within 120 days after a Notice of Completion, or a Notice of Cessation, as applicable, is filed for the Contract, to make a demand for arbitration in accordance with Article 4.7. Failure to perfect a Claim for which a timely election to arbitrate has been made by the timely filing of a demand for arbitration and timely payment of all applicable and required fees to the American Arbitration Association ("AAA") shall result in the University's Representative's decision on said Claim becoming final and binding and not subject to appeal or challenge. If the Disputing Party makes a timely demand for arbitration, and the amount of the Claim in question, when combined with all other Claims, if any, which are the subject of previously filed demands for arbitration that have not been resolved by settlement or arbitration award, is \$100,000 or more, then the other party may elect to litigate all such Claims by filing a written notice with the "AAA" within 30 days after its receipt of notice from the AAA of the Disputing Party's demand for arbitration of the Claim that raises the total amount of Claims subject to arbitration to \$100,000 or more. If the other party fails to give notice of its election to litigate within such 30-day period, it shall be deemed to have consented to arbitration and waived the right to litigate. If after commencement of arbitration the amount of unresolved Claims in arbitration are allowed to be increased to \$100,000 or more, through an AAA-allowed amendment or otherwise, either party may elect to litigate within 30 days following the date that the

electing party first receives written notification from the AAA that total Claims in arbitration equal or exceed \$100,000. If neither party gives notice of its election to litigate within such 30-day period as applicable, then both parties shall be deemed to have consented to arbitration and waived the right to litigate.

4.7.4 A demand for arbitration pursuant to Article 4.7.3 shall include a copy of the Claim presented to University's Representative pursuant to Article 4.4, a copy of the decision of University's Representative pursuant to Article 4.5, if any, a copy of the University's written statement identifying the portion of the Claim that remained in dispute following the informal conference pursuant to Article 4.6.1, and a summary of the remaining portions of the Claim in dispute. The demand shall state the amount in controversy, if any, and state the remedy sought. The demand shall identify the University's Responsible Administrator as the representative of the responding party and the Office of the General Counsel as counsel for the responding party. The demand shall be filed with the AAA and shall not be deemed to have been made until all applicable fees have been paid to the AAA by the demanding party. Copies of the demand and attachments shall be sent to University's Responsible Administrator as the representative of the responding party and the University's Office of General Counsel as attorney for the responding party, at the addresses set forth in the Project Directory, at the time the demand for arbitration is initiated with the AAA.

4.7.5 Except as modified by this Article 4.7, arbitration shall be initiated and conducted in accordance with the Construction Industry Arbitration Rules of the AAA then in effect. The following additional modifications shall be made to the aforesaid AAA rules:

- .1 Civil discovery shall be permitted for the production of documents and taking of depositions. Other discovery may be permitted at the discretion of the arbitrator. All disputes regarding discovery shall be decided by the arbitrator.
- .2 University's Representative and/or University's consultants, shall if required by agreement with University, upon demand by University join in and be bound by the Arbitration. University's Representative and University's consultants will have the same rights in any arbitration proceeding as are afforded by the AAA rules to Contractor and University.
- .3 Contractor's sureties shall be bound by any arbitration award and may join in any arbitration proceeding.
- .4 Except as provided in Articles 4.7.5.2. and 4.7.5.3 above, no Subcontractor or other person shall have a right or obligation to join in or be a party to any arbitration proceeding provided for in this Article 4 either directly, by joinder, by consolidation or actions, by counterclaim or crossclaim, or otherwise without the express written consent of University, Contractor, and the joining party.
- .5 If more than one demand for arbitration is made by a party with respect to Claims referred to University's Representative, all such Claims shall be consolidated into a single arbitration unless the parties otherwise agree in writing.
- .6 If total Claims are less than \$50,000, the AAA expedited procedures as modified by this Article 4 shall apply. If total Claims are between \$50,000 and \$100,000 they shall be heard by a single arbitrator who shall be an attorney. If total Claims are in excess of \$100,000 and are submitted to arbitration, either by agreement or by failure to elect litigation the controversy shall be heard by a panel of three arbitrators, one of which shall be an attorney.
- .7 No arbitrator shall be appointed and no discovery may be commenced prior to the date of Final Completion unless University and Contractor otherwise agree.
- .8 The exclusive forum for determining arbitrability shall be the Superior Court of the State of California. The AAA shall not submit to any arbitrator any matter concerning the arbitrability of the dispute if the arbitrability is contested.
- 9 If the expedited procedures of the AAA are applicable, the AAA shall submit simultaneously to each party an identical list of 7 proposed arbitrators drawn from the National Panel of Commercial Arbitrators, and each party may strike 3 names from the list on a peremptory basis and return the list to the AAA within 10 days from the date of receipt.
- .10 Except as provided herein, the arbitration shall be conducted and enforced under California law, including the California Arbitration Act (California Code of Civil Procedure section 1280 and following). The Federal Arbitration Act shall not apply to the arbitration.

4.7.6 Unless University and Contractor otherwise agree in writing, the arbitration decision shall be binding upon the parties, made under and in accordance with the laws of the State of California, supported by

substantial evidence, and in writing. If the total of all Claims or cross Claims submitted to arbitration is in excess of \$50,000, the award shall contain the basis for the decision, findings of fact, and conclusions of law. Any arbitration award shall be subject to confirmation, vacation, or correction under the procedures and on the grounds specified in the California Code of Civil Procedure including without limitation Section 1296. The expenses and fees of the arbitrators and the administrative fees of the AAA shall be divided among the parties equally. Each party shall pay its own counsel fees, witness fees, and other expenses incurred for its own benefit.

4.7.7 University may, but is not required, to assert as a counterclaim any matter arising out of the claims asserted by Contractor in the arbitration. University's failure to assert any such counterclaim in an arbitration shall be without prejudice to the University's right to assert the counterclaim in litigation or other proceeding.

4.7.8 Any litigation shall be filed in the Superior Court of the State of California for the County in which the contract was to be performed.

#### **4.8 WAIVER**

4.8.1 A waiver of or failure by University or University's Representative to enforce any requirement in this Article 4 in connection with any Claim shall not constitute a waiver of, and shall not preclude the University or University's Representative from enforcing such requirements in connection with any other Claims.

4.8.2 The Contractor agrees and understands that no oral approval, either express or implied, of any Claim shall be binding upon University unless and until such approval is ratified by execution of a written Change Order.

### **ARTICLE 5 SUBCONTRACTORS**

#### **5.1 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK**

5.1.1 Unless otherwise stated in the Contract Documents, Contractor shall submit in writing, prior to entering into subcontract agreements, the names and addresses of all Subcontractors proposed for the Work that were not previously listed in Contractor's Bid.

5.1.2 Any Subcontractor may be disqualified if University or University's Representative determines that such Subcontractor fails to meet the requirements of the Contract Documents or for any other reason.

5.1.3 In accordance with the Subletting and Subcontracting Fair Practices Act, nothing herein shall be deemed to entitle Contractor, without the approval of University, to substitute other subcontractors for those named in Contractor's List of Subcontractors and List of Changes in Subcontractors Due to Alternates contained in the completed Bid Form; and, except with such approval, no such substitution shall be made.

5.1.4 Except as hereinafter provided, any increase in the cost of the Work resulting from the replacement or substitution of a Subcontractor, as required by University or University's Representative pursuant to Article 5.1.1 shall be borne solely by Contractor and Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time on account of such replacement or substitution.

#### **5.2 SUBCONTRACTUAL RELATIONS**

5.2.1 Any part of the Work performed for Contractor by a first-tier Subcontractor shall be pursuant to a written subcontract. Each such subcontract shall require the Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to Contractor by the terms of the Contract Documents, to assume toward Contractor all the obligations and responsibilities which Contractor assumes towards University by the Contract Documents, and to perform such portion of the Work in accordance with the Contract Documents. Each such subcontract shall preserve and protect the rights of University under the Contract Documents, with respect to the Work to be performed by Subcontractor, so that subcontracting thereof will not prejudice such rights. Contractor shall cause each such subcontract to expressly include the following requirements:

- .1 Subcontractor waives all rights that Subcontractor may have against University for damages caused by fire or other perils covered by builder's risk property insurance carried by Contractor or University, except for such rights Subcontractor may have to the proceeds of such insurance held by University under Article 11.
- .2 University and entities and agencies designated by University will have access to

and the right to audit and the right to copy at University's cost all of Subcontractor's books, records, contracts, correspondence, instructions, drawings, receipts, vouchers, purchase orders, and memoranda relating to the Work. Subcontractor shall preserve all such records and other items for a period of at least 3 years after Final Completion.

- .3 Subcontractor recognizes the rights of University under Article 5.3, Contingent Assignment of Subcontracts, and agrees, upon notice from University that University has elected to accept said assignment and to retain Subcontractor pursuant to the terms of the subcontract, to complete the unperformed obligations under the subcontract and, if requested by University, to execute a written agreement confirming that Subcontractor is bound to University under the terms of the subcontract.

5.2.2 Upon the request of University, Contractor shall promptly furnish to University a true, complete, and executed copy of any subcontract.

5.2.3 Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and University, except when, and only to the extent that, University elects to accept the assignment of the subcontract with such Subcontractor pursuant to Article 5.3, Contingent Assignment of Subcontracts.

### **5.3 CONTINGENT ASSIGNMENT OF SUBCONTRACTS**

5.3.1 Contractor hereby assigns to University all its interest in first-tier subcontracts now or hereafter entered into by Contractor for performance of any part of the Work. The assignment will be effective upon acceptance by University in writing and only as to those subcontracts which University designates in writing. University may accept said assignment at any time during the course of the Work and prior to Final Completion in the event of a suspension or termination of Contractor's rights under the Contract Documents. Such assignment is part of the consideration to University for entering into the Contract with Contractor and may not be withdrawn prior to Final Completion.

## **ARTICLE 6 CONSTRUCTION BY UNIVERSITY OR BY SEPARATE CONTRACTORS**

### **6.1 UNIVERSITY'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

6.1.1 University reserves the right to award separate contracts for, or to perform with its own forces, construction or operations related to the Work or other construction or operations at or affecting the Project site, including portions of the Work which have been deleted by Change Order. Contractor shall cooperate with University's forces and Separate Contractors.

6.1.2 University will provide coordination of the activities of University's forces and of each Separate Contractor with the Work of Contractor. Contractor shall participate with University and Separate Contractors in joint review of construction schedules and Project requirements when directed to do so. Contractor shall make necessary revisions to the Contract Schedule after such joint review.

### **6.2 MUTUAL RESPONSIBILITY**

6.2.1 Contractor shall afford University and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities. Contractor shall connect, schedule, and coordinate its construction and operations with the construction and operations of University and Separate Contractors as required by the Contract Documents.

6.2.2 If a portion of the Work is dependent upon the proper execution or results of other construction or operations by University or Separate Contractors, Contractor shall inspect such other construction or operations before proceeding with that portion of the Work. Contractor shall promptly report to University's Representative apparent discrepancies or defects which render the other construction or operations unsuitable to receive the Work. Unless otherwise directed by University's Representative, Contractor shall not proceed with the portion of the Work affected until apparent discrepancies or defects have been corrected. Failure of Contractor to so report within a reasonable time after discovering such discrepancies or defects shall constitute an acknowledgment that the other construction or operations by University or Separate



Contractors is suitable to receive the Work, except as to defects not then reasonably discoverable.

### **6.3 UNIVERSITY'S RIGHT TO CLEAN UP**

6.3.1 If a dispute arises between Contractor and Separate Contractors as to the responsibility under their respective contracts for maintaining the Project site and surrounding areas free from waste materials and rubbish, University may clean up and allocate the cost between those firms it deems to be responsible.

## **ARTICLE 7 CHANGES IN THE WORK**

### **7.1 CHANGES**

7.1.1 University may, from time to time, order or authorize additions, deletions, and other changes in the Work by Change Order or Field Order without invalidating the Contract and without notice to sureties. Absence of such notice shall not relieve such sureties of any of their obligations to University.

7.1.2 Contractor may request a Change Order under the procedures specified in Article 4.2.

7.1.3 A Field Order may be issued by University, does not require the agreement of Contractor, and shall be valid with or without the signature of Contractor.

7.1.4 Contractor shall proceed promptly with any changes in the Work, unless otherwise provided in the relevant Change Order or Field Order.

### **7.2 DEFINITIONS**

7.2.1 A Change Order is a Contract Document (as shown in the Exhibits) which has been signed by both University and Contractor, and states their agreement, as applicable, to the following:

- .1 A change in the Work, if any.
- .2 The amount of an adjustment of the Contract Sum, if any.
- .3 The amount of an adjustment of the Contract Time, if any.
- .4 A modification to any other Contract term or condition.

7.2.2 A Unilateral Change Order may be issued by University, without the Contractor' signature, where the University determines that a change in the Work requires an adjustment of the Contract Sum or Contract Time, even though no agreement has been reached between University and Contractor with regard to such change in the Work.

7.2.3 A Field Order (as shown in the Exhibits) is a Contract Document issued by the University that orders the Contractor to perform Work. A Field Order may, but need not, constitute a change in the Work and may, but need not, entitle Contractor to an adjustment of the Contract Sum or Contract Time.

### **7.3 CHANGE ORDER PROCEDURES**

7.3.1 Contractor shall provide a Change Order Request and Cost Proposal pursuant to Article 4.2 and this Article 7.3 of the General Conditions. Adjustments of the Contract Sum resulting from Extra Work and Deductive Work shall be determined using one of the methods described in this Article 7.3. Adjustments of the Contract Time shall be subject to the provisions in Article 8. Contractor's obligation to provide Cost Proposals shall be subject to the following:

- .1 The obligation of Contractor to provide Cost Proposals is not Extra Work, and shall not entitle the Contractor to an adjustment of the Contract Sum or Contract Time.
- .2 The failure of Contractor to timely provide a Cost Proposal pursuant to Article 4.2 and this Article 7.3.1 is a material breach of the Contract. Contractor shall be responsible for any delay in implementing a change for which Contractor failed to timely provide a Cost Proposal consistent with the requirements of Article 4.2 and this Article 7.3.1.

7.3.2 The term "Cost of Extra Work" as used in this Article 7.3 shall mean actual costs incurred or to be incurred by Contractor and each Subcontractor regardless of tier involved, to the extent not otherwise disallowed under Article 7.3.3, and shall be limited to the following (to the extent the Contractor demonstrates that the costs are both reasonable and actually incurred, if such costs have been incurred):

- .1 Straight-time wages or salaries for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .2 Fringe Benefits and Payroll Taxes for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .3 Overtime wages or salaries, specifically authorized in writing by University's Representative, for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .4 Fringe Benefits and Payroll Taxes for overtime Work specifically authorized in writing by University's Representative, for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .5 Costs of materials and consumable items which are furnished and incorporated into the Extra Work, as approved by University's Representative. Such costs shall be charged at the lowest price available to the Contractor but in no event shall such costs exceed competitive costs obtainable from other subcontractors, suppliers, manufacturers, and distributors in the area of the Project site. All discounts, rebates, and refunds and all returns from sale of surplus materials and consumable items shall accrue to University and Contractor shall make provisions so that they may be obtained.
- .6 Sales taxes on the costs of materials and consumable items which are incorporated into and used in the performance of the Extra Work pursuant to Article 7.3.2.5 above.
- .7 Rental charges for necessary machinery and equipment, whether owned or hired, as authorized in writing by University's Representative, exclusive of hand tools, used directly in the performance of the Extra Work. Such rental charges shall not exceed the current Equipment Rental Rates published by the California Department of Transportation for the area in which the work is performed. Such rental rates are found at <http://www.dot.ca.gov/hq/construc/equipmnt.html> . Contractor shall attach a copy of said schedule to the Cost Proposal. The charges for any machinery and equipment shall cease when the use thereof is no longer necessary for the Extra Work.
- .8 Additional costs of royalties and permits due to the performance of the Extra Work.
- .9 The cost for Insurance and Bonds shall not exceed 2% of items .1 through .8 above.

University and Contractor may agree upon rates to be charged for any of the items listed in this Article 7.3.2. Such agreed upon rates shall be subject to audit pursuant to Article 15.7. Contractor shall promptly refund to University any amounts (including associated mark-ups) in excess of the actual costs of such items.

7.3.3 Cost of Extra Work shall not include any of the following:

- .1 Supervision
- .2 Superintendent(s).
- .3 Assistant Superintendent(s).
- .4 Project Engineer(s).
- .5 Project Manager(s).
- .6 Scheduler(s).
- .7 Estimator(s).
- .8 Small tools (Replacement value does not exceed \$300).
- .9 Office expenses including staff, materials and supplies.
- .10 On-site or off-site trailer and storage rental and expenses.
- .11 Site fencing.
- .12 Utilities including gas, electric, sewer, water, telephone, facsimile, copier equipment.
- .13 Data processing personnel and equipment.
- .14 Federal, state, or local business income and franchise taxes.
- .15 Overhead and Profit.

- .16 Costs and expenses of any kind or item not specifically and expressly included in Article 7.3.2.

7.3.4 The term "Contractor Fee" shall mean the full amount of compensation, both direct and indirect (including without limitation all overhead and profit), to be paid to Contractor for its own Work and the Work of all Subcontractors, for all costs and expenses not included in the Cost of Extra Work, whether or not such costs and expenses are specifically referred to in Article 7.3.3. The Contractor Fee shall not be compounded.

The Contractor Fee shall be computed as follows:

- .1 Fifteen percent (15%) of the cost of that portion of the Extra Work to be performed by the prime contractor with its own forces.
- .2 Fifteen percent (15%) of the cost of that portion of the Work to be performed by a Subcontractor with its own forces, plus 5% for the prime contractor. Total combined Contractor and Subcontractor fee shall not exceed 20%.
- .3 Fifteen percent (15%) of the cost of that portion of the Work to be performed by a sub-subcontractor with its own forces, or any lower tier of Subcontractor, plus 5% for the Subcontractor, plus 5% for the prime contractor. Total combined Contractor, Subcontractor and all sub-subcontractor fee shall not exceed 25%.

7.3.5 Compensation for Extra Work shall be computed on the basis of one or more of the following:

- .1 Where the Work involved is covered by Unit Prices contained in the Contract Documents, by application of the Unit Prices to the quantities of the items involved.
- .2 Where Unit Prices are not applicable, a mutually agreed upon lump sum supported by a Cost Proposal pursuant to 7.3.1.
- .3 Where Contractor and University cannot agree upon a lump sum, by Cost of Extra Work plus Contractor Fee applicable to such Extra Work.

7.3.6 As a condition to Contractor's right to an adjustment of the Contract Sum pursuant to Article 7.3.5.3, Contractor must keep daily detailed and accurate records itemizing each element of cost and shall provide substantiating records and documentation, including time cards and invoices. Such records and documentation shall be submitted to University's Representative on a daily basis.

7.3.7 For Work to be deleted by Change Order, the reduction of the Contract Sum shall be computed on the basis of one or more of the following:

- .1 Unit Prices stated in the Contract Documents.
- .2 Where Unit Prices are not applicable, a lump sum agreed upon by University and Contractor, based upon the actual costs which would have been incurred in performing the deleted portions of the Work as calculated in accordance with Articles 7.3.2 and 7.3.3, supported by a Cost Proposal pursuant to Article 7.3.1.

7.3.8 If any one Change involves both Extra Work and Deleted Work in the same portion of the Work, a Contractor fee will not be allowed if the deductive cost exceeds the additive cost. If the additive cost exceeds the deductive cost, a Contractor Fee will be allowed only on the difference between the two amounts.

7.3.9 The Contract Sum will be adjusted for a delay if, and only if, Contractor demonstrates that all of the following three conditions are met:

- .1 Condition Number One: The delay results in an extension of the Contract Time pursuant to Article 8.4.1.
- .2 Condition Number Two: The delay is caused solely by one or more of the following:
  - .1 An error or omission in the Contract Documents; or
  - .2 The University's decision to change the scope of the Work, where such decision is not the result of any default or misconduct of the Contractor; or
  - .3 The University's decision to suspend the Work, where such decision is not the result of any default or misconduct of the Contractor; or

- .4 The failure of the University (including the University acting through its consultants, Design Professionals, Separate Contractors or the University's Representative) to perform any Contract obligation where the failure to so perform is not the result of any default or misconduct of the Contractor.
  - .5 A materially differing site condition pursuant to Article 3.17.
- .3 Condition Number Three: The delay is not concurrent with a delay caused by an event other than those listed in Article 7.3.9.2.

7.3.10 For each day of delay that meets all three conditions prescribed in Article 7.3.9 the Contract Sum will be adjusted by the daily rate included in the Agreement and specifically identified as the rate to be paid to Contractor for Compensable Delays. Pursuant to Article 9.7.4, said daily rate shall not apply to delays occurring after Substantial Completion.

7.3.11 Except as provided in Articles 7 and 8, Contractor shall have no claim for damage or compensation for any delay, interruption, hindrance, or disruption.

7.3.12 If for any reason one or more of the conditions prescribed in Article 7.3.9 is held legally unenforceable, the remaining conditions must be met as a condition to obtaining an adjustment of the Contract Time under Article 7.3.10.

#### 7.4 FIELD ORDERS

7.4.1 Field Orders issued by the University Representative shall be subject to the following:

- .1 A Field Order may state that it does or does not constitute a change in the Work.
- .2 If the Field Order states that it does not constitute a change in the Work and the Contractor asserts that the Field Order constitutes a change in the Work, in order to obtain an adjustment of the Contract Sum or Contract Time for the Work encompassed by the Field Order, Contractor must follow all procedures set forth in Article 4, starting with the requirement of submitting a timely Change Order Request within 7 days of Contractor's receipt of the Field Order; failure to strictly follow those procedures is a bar to any Claim for an adjustment of the Contract Sum or Contract Time arising from performance of the Work described in the Field Order.
- .3 If the Field Order states that it does constitute a change in the Work, the Work described in the Field Order shall be considered Extra Work and the Contractor shall be entitled to an adjustment of the Contract Sum and Contract Time, calculated under and subject to Contractor's compliance with the procedures for verifying and substantiating costs and delays in Articles 7 and 8.
- .4 In addition, if the Field Order states that it does constitute a change in the Work, the Field Order may or may not contain University's estimate of adjustment of Contract Sum and/or Contract Time. If the Field Order contains an estimate of adjustment of Contract Sum or Contract Time, the Field Order is subject to the following:
  - .1 The Contractor shall not exceed the University's estimate of adjustment to Contract Sum or Contract Time without prior written notification to the University's Representative.
  - .2 If the Contractor asserts that the change in the Work encompassed by the Field Order may entitle Contractor to an adjustment of Contract Sum or Contract Time in excess of the University's estimate, in order not to be bound by University's estimate Contractor must follow all procedures set forth in Article 4, starting with the requirement of submitting a timely Change Order Request within 7 days of Contractor's receipt of the Field Order; failure to strictly follow those procedures is a bar to any Claim for an adjustment of the Contract Sum or Contract Time, in excess of the University's estimate, arising from performance of the Work described in the Field Order.

7.4.2 Upon receipt of a Field Order, Contractor shall promptly proceed to perform the Work as ordered in the Field Order notwithstanding any disagreement by the Contractor concerning whether the Work is extra.

**7.5 VARIATION IN QUANTITY OF UNIT PRICE WORK**

7.5.1 University has the right to increase or decrease the quantity of any Unit price item for which an Estimated Quantity is stated in the Bid Form.

**7.6 WAIVER**

7.6.1 A waiver of or failure by University or University's Representative to enforce any requirement in this Article 7, including without limitation the requirements in Articles 7.3.6, 7.3.8, 7.3.9, 7.3.10, 7.3.11, or 7.3.12 in connection with any adjustment of the Contract Sum, will not constitute a waiver of, and will not preclude the University or University's Representative from enforcing, such requirements in connection with any other adjustments of the Contract Sum.

7.6.2 The Contractor agrees and understands that no oral approval, either express or implied, of any adjustment of the Contract Sum by University or its agents shall be binding upon University unless and until such approval is ratified by execution of a written Change Order.

**ARTICLE 8  
CONTRACT TIME**

**8.1 COMMENCEMENT OF THE WORK**

8.1.1 The date of commencement of the Work shall be set forth in the Notice To Proceed. The date of commencement of the Work shall not be postponed by the failure of Contractor, Subcontractors, or of persons or firms for whom Contractor is responsible, to act.

**8.2 PROGRESS AND COMPLETION**

8.2.1 By signing the Agreement:

- .1 Contractor represents to University that the Contract Time is reasonable for performing the Work and that Contractor is able to perform the Work within the Contract Time.
- .2 Contractor agrees that University is purchasing the right to have the Contractor present on the Project site for the full duration of the Contract Time, even if Contractor could finish the Contract in less than the Contract Time.

8.2.2 Contractor shall not, except by agreement or instruction of University in writing, commence operations on the Project site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by Contractor. The dates of commencement and Final Completion of the Work shall not be changed by the effective date of such insurance.

8.2.3 Contractor shall proceed expeditiously with adequate forces and shall achieve full completion of the Work within the Contract Time. If University's Representative determines and notifies Contractor that Contractor's progress is such that Contractor will not achieve full completion of the Work within the Contract Time, Contractor shall immediately and at no additional cost to University, take all measures necessary, including working such overtime, additional shifts, Sundays, or holidays as may be required to ensure that the Work is fully completed within the Contract Time. Upon receipt of such notice from University's representative, Contractor shall immediately notify University's Representative of all measures to be taken to ensure full completion of the Work within the Contract Time. Contractor shall reimburse University for any extra costs or expenses (including the reasonable value of any services provided by University's employees) incurred by University as the result of such measures.

**8.3 DELAY**

8.3.1 Except and only to the extent provided otherwise in Articles 7 and 8, by signing the Agreement, Contractor agrees:

- .1 to bear the risk of delays to the Work; and

- .2 that Contractor's bid for the Contract was made with full knowledge of this risk.

In agreeing to bear the risk of delays to the Work, Contractor understands that, except and only to the extent provided otherwise in Articles 7 and 8, the occurrence of events that delay the Work shall not excuse Contractor from its obligation to achieve Final Completion of the Work within the Contract Time, and shall not entitle the Contractor to an adjustment of the Contract Sum.

#### 8.4 ADJUSTMENT OF THE CONTRACT TIME FOR DELAY

8.4.1 Subject to Article 8.4.2, the Contract Time will be extended for each day of delay for which Contractor demonstrates that all of the following four conditions have been met; a time extension will not be granted for any day of delay for which Contractor fails to demonstrate compliance with the four conditions:

- .1 Condition Number One: The delay is critical. A delay is critical if and only to the extent it delays a work activity that cannot be delayed without delaying Final Completion of the Work beyond the Contract Time. Under this Article 8.4.1.2, if the Contract Schedule shows Final Completion of the Work before expiration of the Contract Time, a delay is critical if and only to the extent the delay pushes Final Completion of the Work to a date that is beyond the Contract Time.
- .2 Condition Number Two: Within 7 days of the date the Contractor discovers or reasonably should discover an act, error, omission or unforeseen condition or event causing the delay is likely to have an impact on the critical path of the Project, (even if the Contractor has not yet been delayed when the Contractor discovers or reasonably should discover the critical path impact of the act, error, omission or unforeseen condition giving rise to the delay) the Contractor submits both a timely and complete Change Order Request that meets the requirements of Article 4.2.
- .3 Condition Number Three: The delay is not caused by:
  - .1 A concealed, unforeseen or unknown condition or event except for a materially differing site condition pursuant to Article 3.17; or
  - .2 The financial inability, misconduct or default of the Contractor, a Subcontractor or supplier; or
  - .3 The unavailability of materials or parts.
- .4 Condition Number Four: The delay is caused by:
  - .1 Fire; or
  - .2 Strikes, boycotts, or like obstructive actions by labor organizations; or
  - .3 Acts of God (As used herein, "Acts of God" shall include only earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves); or
  - .4 A materially differing site condition pursuant to Article 3.17; or
  - .5 An error or omission in the Contract; or
  - .6 The University's decision to change the scope of the Work, where such decision is not the result of any default or misconduct of the Contractor; or
  - .7 The University's decision to suspend the Work, where such decision is not the result of any default or misconduct of the Contractor; or
  - .8 The failure of the University (including the University acting through its consultants, Design Professionals, Separate Contractors or the University's representative) to perform any Contract obligation unless such failure is due to Contractor's default or misconduct.
  - .9 "Adverse weather," but only for such days of adverse weather, or on-site conditions caused by adverse weather, that are in excess of the number of days specified in the Supplementary Conditions. In order for a day to be considered a day of adverse weather for the purpose of determining whether Contractor is

entitled to an adjustment in Contract Time, both of the following conditions must be met:

- .1 the day must be a day in which, as a result of adverse weather, less than one half day of critical path work is performed by Contractor; and
- .2 the day must be identified in the Contract Schedule as a scheduled work day.

8.4.2 If and only if a delay meets all four conditions prescribed in Article 8.4.1, then a time extension will be granted for each day that Final Completion of the Work is delayed beyond the Contract Time, subject to the following:

.1 When two or more delays (each of which meet all four conditions prescribed in Article 8.4.1) occur concurrently on the same day, and each such concurrent delay by itself without consideration of the other delays would be critical, then all such concurrent delays shall be considered critical. For the purpose of determining whether and to what extent the Contract Time should be adjusted pursuant to Article 8.4.2, such concurrent critical delays shall be treated as a single delay for each such day.

.2 Contractor shall be entitled to a time extension for a day of delay that meets all four requirements of Article 8.4.1 if the delay is concurrent with a delay that does not meet all four conditions of Article 8.4.1.

8.4.3 If for any reason one or more of the four conditions prescribed in Article 8.4.1 is held legally unenforceable, then all remaining conditions must be met as a condition to obtaining an extension of the Contract Time under Article 8.4.2.

## **8.5 COMPENSATION FOR DELAY**

8.5.1 To the maximum extent allowed by law, any adjustment of the Contract Sum as the result of delays shall be limited to the amounts specified in Article 7. Such adjustment shall, to the maximum extent allowed by law, constitute payment in full for all delay related costs (including costs for disruption, interruption and hindrance, general conditions, on and off-site overhead and profit) of Contractor, its Suppliers and Subcontractors of all tiers and all persons and entities working under or claiming through Contractor in connection with the Project.

8.5.2 By signing the Agreement, the parties agree that the University is buying the right to do any or all of the following, which are reasonable and within the contemplation of the parties:

- .1 To order changes in the Work, regardless of the extent and number of changes, including without limitation:
  - .1 Changes to correct errors or omissions, if any, in the Contract Documents.
  - .2 Changes resulting from the University's decision to change the scope of the Work subsequent to execution of the Contract.
  - .3 Changes due to unforeseen conditions.
- .2 To suspend the Work or any part thereof.
- .3 To delay the Work, including without limitation, delays resulting from the failure of the University or the University's Representative to timely perform any Contract obligation and delays for University's convenience.

## **8.6 WAIVER**

8.6.1 A waiver of or failure by University or University's Representative to enforce any requirement in this Article 8, including without limitation the requirements in Article 8.4, in connection with any or all past delays shall not constitute a waiver of, and shall not preclude the University or University's Representative from enforcing, such requirements in connection with any present or future delays.

8.6.2 Contractor agrees and understands that no oral approval, either express or implied, of any time extension by University or its agents shall be binding upon University unless and until such approval is ratified by execution of a written Change Order.

**ARTICLE 9  
PAYMENTS AND COMPLETION**

**9.1 COST BREAKDOWN**

9.1.1 Within 10 days after receipt of the Notice of Selection as the apparent lowest responsible Bidder, and with the Agreement, Contractor shall submit to University's Representative a Cost Breakdown of the Contract Sum in the form contained in the Exhibits. The Cost Breakdown shall itemize as separate line items the cost of each Work Activity and all associated costs, including but not limited to warranties, as-built documents, overhead expenses, and the total allowance for profit. Insurance and bonds shall each be listed as separate line items. The total of all line items shall equal the Contract Sum. The Cost Breakdown, when approved by the University's Representative, shall become the basis for determining the cost of Work performed for Contractor's Applications for Payment.

**9.2 PROGRESS PAYMENT**

9.2.1 University agrees to pay monthly to Contractor, subject to Article 9.4.3, an amount equal to 95% of the sum of the following:

- .1 Cost of the Work in permanent place as of the date of the Contractor's Application For Payment.
- .2 Plus cost of materials not yet incorporated in the Work, subject to Article 9.3.5.
- .3 Less amounts previously paid.

Under this Article 9.2.1, University may, but is not required, to pay Contractor more frequently than monthly.

9.2.2 After Substantial Completion and subject to Article 9.4.3, University will make any of the remaining progress payments in full.

**9.3 APPLICATION FOR PAYMENT**

9.3.1 On or before the 10th day of the month or such other date as is established by the Contract Documents, Contractor shall submit to University's Representative an itemized Application For Payment, for the cost of the Work in permanent place, as approved by University's Representative, which has been completed in accordance with the Contract Documents, less amounts previously paid.

The Application For Payment shall be prepared as follows:

- .1 Use the form contained in the Exhibits.
- .2 Itemize in accordance with the Cost Breakdown.
- .3 Include such data substantiating Contractor's right to payment as University's Representative may reasonably require, such as invoices, certified payrolls, daily time and material records, and, if securities are deposited in lieu of retention pursuant to Article 9.5, a certification of the market value of all such securities as of a date not earlier than 5 days prior to the date of the Application For Payment.
- .4 Itemize retention.

9.3.2 Applications For Payment shall not include requests for payment on account of (1) changes which have not been authorized by Change Orders or (2) amounts Contractor does not intend to pay a Subcontractor because of a dispute or other reason.

9.3.3 If required by University, an Application For Payment shall be accompanied by (1) a summary showing payments that will be made to Subcontractors covered by such application and conditional releases upon progress payment or final payment and (2) unconditional waivers and releases of claims and stop payment notices, in the form contained in the Exhibits, from each Subcontractor listed in the preceding Application For Payment covering sums disbursed pursuant to that preceding Application For Payment.

9.3.4 Contractor warrants that, upon submittal of an Application For Payment, all Work, for which



Certificates For Payment have been previously issued and payment has been received from University, shall be free and clear of all claims, stop payment notices, security interests, and encumbrances in favor of Contractor, Subcontractors, or other persons or firms entitled to make claims by reason of having provided labor, materials, or equipment relating to the Work.

9.3.5 At the sole discretion of University, University's Representative may approve for inclusion in the Application For Payment the cost of materials not yet incorporated in the Work but already delivered and suitably stored either at the Project site or at some other appropriate location acceptable to University's Representative. In such case, Contractor shall furnish evidence satisfactory to University's Representative (1) of the cost of such materials and (2) that such materials are under the exclusive control of Contractor. Only materials to be incorporated in the Work will be considered for payment. Any payment shall not be construed as acceptance of such materials nor relieve Contractor from sole responsibility for the care and protection of such materials; nor relieve Contractor from risk of loss to such materials from any cause whatsoever; nor relieve Contractor from its obligation to complete the Work in accordance with the Contract; nor act as a waiver of the right of University to require fulfillment of all terms of the Contract. Nothing contained within this Article 9.3.5 shall be deemed to obligate University to agree to payment for any non-incorporated materials or any part thereof, payment being in the sole and absolute discretion of University.

#### **9.4 CERTIFICATE FOR PAYMENT**

9.4.1 If Contractor has submitted an Application For Payment in accordance with Article 9.3, University's Representative shall, not later than 5 working days after the date of receipt of the Application For Payment, issue to University, with a copy to Contractor, a Certificate For Payment for such amount as University's Representative determines to be properly due.

9.4.2 If any such Application For Payment is determined not to be in accordance with Article 9.3, University will inform Contractor as soon as practicable, but not later than 5 working days after receipt. Thereafter, Contractor shall have 3 days to revise and resubmit such Application For Payment; otherwise University's Representative may issue a Certificate For Payment in the amount that University's Representative determines to be properly due without regard to such Application For Payment.

9.4.3 Approval of all or any part of an Application For Payment may be withheld, a Certificate For Payment may be withheld, and all or part of a previous Certificate For Payment may be nullified and that amount withheld from a current Certificate For Payment on account of any of the following:

- .1 Defective Work not remedied.
- .2 Third-party claims against Contractor or University arising from the acts or omissions of Contractor or Subcontractors.
- .3 Stop payment notices.
- .4 Failure of Contractor to make timely payments due Subcontractors for material or labor.
- .5 A reasonable doubt that the Work can be completed for the balance of the Contract Sum then unpaid.
- .6 Damage to University or Separate Contractor for which Contractor is responsible.
- .7 Reasonable evidence that the Work will not be completed within the Contract Time; and that the unpaid balance of the Contract Sum would not be adequate to cover University's damages for the anticipated delay.
- .8 Failure of Contractor to maintain and update as-built documents.
- .9 Failure of Contractor to submit schedules or their updates as required by the Contract Documents.
- .10 Failure to provide conditional or unconditional releases from any Subcontractor or supplier, if such waiver(s) have been requested by University's Representative.
- .11 Performance of Work by Contractor without properly processed Shop Drawings.
- .12 Liquidated damages assessed in accordance with Article 5 of the Agreement.
- .13 Failure to provide updated Reports of Subcontractor Information and Self-Certifications, as applicable.
- .14 Failure to provide a Final Distribution of Contract Dollars with final Application for Payment.
- .14 Any other failure of Contractor to perform its obligations under the Contract Documents.

9.4.4 Subject to the withholding provisions of Article 9.4.3, University will pay Contractor the amount set

forth in the Certificate For Payment no later than 10 days after the issuance of the Certificate For Payment.

9.4.5 Neither University nor University's Representative will have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

9.4.6 Neither a Certificate For Payment nor a progress payment made by University will constitute acceptance of Defective Work.

## **9.5 DEPOSIT OF SECURITIES IN LIEU OF RETENTION AND DEPOSIT OF RETENTION INTO ESCROW**

9.5.1 At the request and expense of Contractor, a substitution of securities may be made for any monies retained by University under Article 9.2 to ensure performance under the Contract Documents. Securities equivalent in value to the retention amount required by the Contract Documents for each Certificate For Payment shall be deposited by Contractor with a state or federally chartered bank in the State of California ("Escrow Agent"), which shall hold such securities pursuant to the escrow agreement referred to in Article 9.5.3 until retention is due in accordance with Article 9.8. Securities shall be valued as often as conditions of the securities market warrant, but in no case less than once per month. Contractor shall deposit additional securities so that the current market value of the total of all deposited securities shall be at least equal to the total required amount of retention.

9.5.2 Alternatively to Article 9.5.1, and at the request and expense of Contractor, University will deposit retention directly with Escrow Agent. Contractor may direct the investment of such deposited retention into interest bearing accounts or securities, and such deposits or securities shall be held by Escrow Agent upon the same terms provided for securities deposited by Contractor. Contractor and its surety shall bear the risk of failure of the Escrow Agent selected.

9.5.3 A prerequisite to the substitution of securities in lieu of retention or the deposit of retention into escrow shall be the execution by Contractor, University, and Escrow Agent of an Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention in the form contained in the Exhibits. The Contractor shall submit the Selection of Retention Options and the Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention not later than the date when 50% of the Work has been completed. The terms of such escrow agreement are incorporated into the requirements of this Article 9.5.

## **9.6 BENEFICIAL OCCUPANCY**

9.6.1 University reserves the right, at its option and convenience, to occupy or otherwise make use of any part of the Work at any time prior to Substantial Completion or Final Completion upon 10 days' notice to Contractor. Such occupancy or use is herein referred to as "Beneficial Occupancy." Beneficial Occupancy shall be subject to the following conditions:

- .1 University's Representative will make an inspection of the portion of the Project to be beneficially occupied and prepare a list of items to be completed or corrected prior to Final Completion. Prior to Beneficial Occupancy, University will issue a Certificate of Beneficial Occupancy on University's form.
- .2 Beneficial Occupancy by University shall not be construed by Contractor as an acceptance by University of that portion of the Work which is to be occupied.
- .3 Beneficial Occupancy by University shall not constitute a waiver of existing claims of University or Contractor against each other.
- .4 Contractor shall provide, in the areas beneficially occupied and on a 24 hour and 7 day week basis as required, utility services, heating, and cooling for systems which are in operable condition at the time of Beneficial Occupancy. All responsibility for the operation and maintenance of equipment shall remain with Contractor while the equipment is so operated. Contractor shall submit to University an itemized list of each piece of equipment so operated with the date operation commences.
- .5 The Guarantee to Repair Periods, as defined in Article 12.2, will commence upon the occupancy date stated in the Certificate of Beneficial Occupancy except that the Guarantee to Repair Periods for that part of equipment or systems that serve portions of the Work for which University has not taken Beneficial Occupancy or

- issued a Certificate of Substantial Completion shall not commence until the University has taken Beneficial Occupancy for that portion of the Work or has issued a Certificate of Substantial Completion with respect to the entire Project.
- .6 University will pay all normal operating and maintenance costs resulting from its use of equipment in areas beneficially occupied.
  - .7 University will pay all utility costs which arise out of the Beneficial Occupancy.
  - .8 Contractor shall not be responsible for providing security in areas beneficially occupied.
  - .9 University will use its best efforts to prevent its Beneficial Occupancy from interfering with the conduct of Contractor's remaining Work.
  - .10 Contractor shall not be required to repair damage caused by University in its Beneficial Occupancy.
  - .11 Except as provided in this Article 9.6, there shall be no added cost to University due to Beneficial Occupancy.
  - .12 Contractor shall continue to maintain all insurance required by the Contract in full force and effect.

#### **9.7 SUBSTANTIAL COMPLETION**

9.7.1 "Substantial Completion" means the stage in the progress of the Work, as determined by University's Representative, when the Work is complete and in accordance with the Contract Documents except only for completion of minor items which do not impair University's ability to occupy and fully utilize the Work for its intended purpose and a Certificate of Occupancy has been issued by the University's Building Official.

9.7.2 When Contractor gives notice to University's Representative that the Work is substantially complete, unless University's Representative determines that the Work is not sufficiently complete to warrant an inspection to determine Substantial Completion, University's Representative will inspect the Work. If the University's Representative determines that the Work is not substantially completed the University's Representative will prepare and give to Contractor a comprehensive list of items to be completed or corrected before establishing Substantial Completion. Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. Upon notification that the items on the list are completed or corrected, as applicable, the University's Representative will make an inspection to determine whether the Work is substantially complete. Costs for additional inspection by University's Representative shall be deducted from any monies due and payable to Contractor.

9.7.3 When University's Representative determines that the Work is substantially complete, University's Representative will arrange for inspection by University's Building Official and other officials, as appropriate, for the purpose of issuing a Certificate of Occupancy. After a Certificate of Occupancy has been issued by the University's Building Official, the University's Representative will prepare a Certificate of Substantial Completion on University's form as contained in the Exhibits, which, when signed by University, shall establish the date of Substantial Completion and the responsibilities of University and Contractor for security, maintenance, utilities, insurance, and damage to the Work. The University's Representative will prepare and furnish to the Contractor a comprehensive "punch list" of items to be completed or corrected prior to Final Completion.

9.7.4 Unless otherwise provided in the Certificate of Substantial Completion, the Guarantee To Repair Period for the Work covered by the Certificate of Substantial Completion, shall commence on the date of Substantial Completion of the Work except that Substantial Completion shall not commence the Guarantee to Repair Period for any equipment or systems that:

- .1 Are not operational (equipment or systems shall not be considered operational if they cannot be used to provide the intended service; or
- .2 Are not accepted by the University.

The Guarantee To Repair Period for equipment or systems which become operational and accepted subsequent to Substantial Completion will begin on the date of their written acceptance by University.

9.7.5 The daily rate included in the Agreement and specifically identified as the rate to be paid to Contractor for Compensable Delays shall not apply to any delays occurring after the Work is substantially completed.

#### **9.8 FINAL COMPLETION, FINAL PAYMENT, AND RELEASE OF RETENTION**

9.8.1 Upon receipt of notice from Contractor that the Work is ready for final inspection, University's Representative will make such inspection. Final Completion shall be when University's Representative determines that the Work is fully completed and in accordance with the Contract Documents, including without limitation, satisfaction of all "punch list" items, and determines that a Certificate of Occupancy has been issued by the University's Building Official. University will file a Notice of Completion within 15 days after Final Completion. After receipt of the final Application For Payment, if University's Representative determines that Final Completion has occurred, University's Representative will issue the final Certificate For Payment.

9.8.2 Final payment and retention shall be released to Contractor, as set forth in Article 9.8.3, after:

.1 Contractor submits the final Application For Payment and all submittals required in accordance with Article 9.3;

.2 Contractor submits all guarantees and warranties procured by Contractor from Subcontractors, all operating manuals for equipment installed in the Project, as-built documents, and all other submittals required by the Contract Documents;

.3 Contractor submits the Final Distribution of Contract Dollars in the form contained in the Exhibits; and

.4 University's Representative issues the final Certificate For Payment.

At its sole discretion, after Final Completion, University may waive the requirement that Contractor submit a final Application For Payment before making final payment and/or release of retention to Contractor.

9.8.3 Final payment shall be paid not more than 10 days after University's Representative issues the final Certificate For Payment. Retention shall be released to Contractor 35 days after the filing of the Notice of Completion.

9.8.4 Acceptance of final payment by Contractor shall constitute a waiver of all claims, except claims for retention and claims previously made in writing and identified by Contractor as unsettled at the time of the final Application For Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **10.1 SAFETY PRECAUTIONS AND PROGRAMS**

10.1.1 Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

### **10.2 SAFETY OF PERSONS AND PROPERTY**

10.2.1 Contractor shall take adequate precautions for safety of and shall provide adequate protection to prevent damage, injury, or loss to the following:

.1 Employees involved in the Work and other persons who may be affected thereby.

.2 The Work in place and materials and equipment to be incorporated therein, whether in storage on or off the Project site, under care, custody, or control of Contractor or Subcontractors.

.3 Other property at the Project site and adjoining property.

10.2.2 Contractor shall erect and maintain, as required by existing conditions and performance of the Work, adequate safeguards for safety and protection, including providing adequate lighting and ventilation, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.2.3 When use or storage of explosives, other hazardous materials, equipment, or unusual methods are

necessary for execution of the Work, Contractor shall exercise the utmost care and carry on such activities only under the supervision of properly qualified personnel.

10.2.4 Contractor shall designate a responsible member of Contractor's organization at the Project site whose duty shall be the prevention of accidents. That person shall be the Superintendent, unless otherwise designated by Contractor in writing to University and University's Representative.

10.2.5 Contractor shall not load or permit any part of the Work or the Project site to be loaded so as to endanger the safety of persons or property.

### **10.3 EMERGENCIES**

10.3.1 In an emergency affecting the safety of persons or property, Contractor shall act to prevent or minimize damage, injury, or loss. Contractor shall promptly notify University's Representative, which notice may be oral followed by written confirmation, of the occurrence of such an emergency and Contractor's action.

## **ARTICLE 11 INSURANCE AND BONDS**

### **11.1 CONTRACTOR'S INSURANCE**

11.1.1 Contractor shall, at its expense, purchase and maintain in full force and effect such insurance as will protect itself and University from claims, such as for bodily injury, wrongful death, and property damage, which may arise out of or result from the Work required by the Contract Documents, whether such Work is done by Contractor, by any Subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. The amounts of such insurance and any additional insurance requirements are specified in the Supplementary Conditions. See Article 3.21 regarding the scope and extent of Contractor's liability for and repair of damaged Work.

11.1.2 The following policies and coverages shall be furnished by Contractor:

- .1 COMMERCIAL FORM GENERAL LIABILITY INSURANCE covering all Work done by or on behalf of Contractor and providing insurance for bodily injury, wrongful death, personal injury, property damage, and contractual liability. Except with respect to bodily injury and property damage included within the products and completed operations hazards, the aggregate limit shall apply separately to Work required of Contractor by these Contract Documents. If the insurance under this Article 11.1.2.1 is written on a claims-made form, coverage shall continue for a period of not less than 3 years following termination of this Contract. Coverage shall provide for a retroactive date of placement prior to or coinciding with the effective date of this Contract.
- .2 BUSINESS AUTOMOBILE LIABILITY INSURANCE on an "Occurrence" form covering owned, hired, leased, and non-owned automobiles used by or on behalf of Contractor and providing insurance for bodily injury and property damage.
- .3 WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE as required by Federal and State of California law. Contractor shall also require all of its Subcontractors to maintain this insurance coverage.

11.1.3 The coverages required under this Article 11 shall not in any way limit the liability of Contractor.

11.1.4 Certificates of Insurance, as evidence of the insurance required by these Contract Documents and on the form contained in the Exhibits, shall be submitted by Contractor to University. The Certificates of Insurance shall provide for no cancellation or modification of coverage without prior written notice to University, in accordance with policy provisions.

11.1.5 In the event Contractor does not comply with these insurance requirements, University may, at its option, provide insurance coverage to protect University; and the cost of such insurance shall be paid by Contractor and may be deducted from the Contract Sum.

11.1.6 Contractor's insurance as required by Article 11.1.2, shall, by endorsement to the policies, include the following:

- .1 The Regents of the University of California, The University of California, University, and each of their Representatives, consultants, officers, agents, employees, and each of their Representative's consultants, regardless of whether or not identified in the Contract Documents or to the Contractor in writing, will be included as additional insureds on the Contractor's General Liability insurance for and relating to the Work to be performed by the Contractor and Subcontractors. Additional Insured provision or endorsement shall be at least as broad as the CG 20 10 04 13 in combination with the CG 20 37 04 13 (or earlier versions of CG 20 10 and CG 20 37 or Form B - CG 20 10 11 85 by itself), as published by Insurance Services Offices (ISO) and shall be included with Certificates of Insurance. The additional insured requirement shall not apply to Worker's Compensation and Employer's Liability insurance.

Further, the amount of insurance available to the University shall be for the full amount of the loss up to the available policy limits and shall not be limited to any minimum requirements stated in the Contract Documents.

- .2 A Severability of Interest Clause that shall be primary insurance as respects The Regents of the University of California, its officers, agents and employees. Any insurance or self-insurance maintained by The Regents of the University of California shall be excess of and non-contributory with this insurance. The provision shall state that, "The term 'insured' is hereby used severally and not collectively, but the inclusion herein of more than one insured shall not operate to increase the limits of the insurers' liability."
- .3 A Cross Liability Clause stating that, "In the event of claims being made under any of the coverages of the policies referred to herein by one or more insureds hereunder for which another insured hereunder may be liable, then the policies shall cover such insureds against whom a claim is made or may be made in the same manner as if separate policies had been issued to each insured hereunder. Nothing contained herein, however, shall operate to increase the insurers' limits of liability as set forth in the insuring agreements."
- .4 University, University's consultants, University's Representative, and University's Representative's consultants will not by reason of their inclusion as insureds incur liability to the insurance carriers for payment of premiums for such insurance.
- .5 Coverage provided is primary and is not in excess of or contributing with any insurance or self-insurance maintained by University, University's consultants, University's Representative, and University's Representative's consultants. This provision, however, shall only apply as per the stipulations of Article 11.1.6.1.

11.1.7 The form and substance of all insurance policies required to be obtained by Contractor shall be subject to approval by University. All policies required by Articles 11.1.2.1, 11.1.2.2, and 11.1.2.3 shall be issued by companies with ratings and financial classifications as specified in the Supplementary Conditions.

11.1.8 Contractor shall, by mutual agreement with University, furnish any additional insurance as may be required by University. Contractor shall provide Certificates of Insurance evidencing such additional insurance.

11.1.9 The Certificate of Insurance shall show (1) all companies affording coverage and (2) the name of the insured exactly in the manner as shown on the Bid Form. The name of the insured must be the name under which the entity is licensed by the Contractors State License Board.

11.1.10 If insurance company refuses to use the Certificate of Insurance form as contained in the Exhibits, it must provide a Certificate of Insurance evidencing compliance with this Article and Special Provisions 1 and

2 on the Certificate of Insurance Exhibit by including an endorsement to its Certificate of Insurance form covering Special Provisions 1 and 2 exactly as these provisions appear on the Certificate of Insurance Exhibit.

11.1.11 At the request of University, Contractor shall submit to University copies of the policies obtained by Contractor.

## **11.2 BUILDER'S RISK PROPERTY INSURANCE**

11.2.1 If and only if the Contract Sum exceeds \$300,000 at the time of award, University will provide its standard builder's risk property insurance, subject to the deductibles, terms and conditions, exclusions, and limitations as contained in the provisions of the policy. A copy of the University's standard builder's risk property insurance policy is available at the University's Facility office. In addition, a summary of the provisions of the policy is included as an Exhibit to the Contract. Contractor agrees that the University's provision of its standard builder's risk property insurance policy meets the University's obligation to provide builder's risk property insurance under the Contract and, in the event of a conflict between the provisions of the policy and any summary or description of the provisions contained herein or otherwise, the provisions of the policy shall control and shall be conclusively presumed to fulfill the University's obligation to provide such insurance. The proceeds under such insurance policies taken out by University insuring the Work and materials will be payable to University and Contractor as their respective interests, from time to time, may appear. Contractor shall be responsible for the deductible amount in the event of a loss. In addition, nothing in this Article 11.2 shall be construed to relieve Contractor of full responsibility for loss of or damage to materials not incorporated in the Work, and for Contractor's tools and equipment used to perform the Work, whether on the Project site or elsewhere, or to relieve Contractor of its responsibilities referred to under this Article 11. Materials incorporated in the Work, as used in this Article 11.2, shall mean materials furnished while in transit to, stored at, or in permanent place at the Project site.

11.2.2 Insurance policies referred to under this Article 11.2 shall:

- .1 Include a provision that the policies are primary and do not participate with nor are excess over any other valid collectible insurance carried by Contractor.
- .2 Include a waiver of subrogation against Contractor, its Subcontractors, its agents, and employees.

11.2.3 Builder's risk insurance coverage under this Article 11.2 will expire on the date of Final Completion recited in a Notice of Completion filed pursuant to Article 9.8.1. Should a Notice of Completion be filed more than 10 days after the date of Final Completion, the date of Final Completion recited in the Notice of Completion will govern.

## **11.3 PERFORMANCE BOND AND PAYMENT BOND**

11.3.1 Contractor shall furnish bonds covering the faithful performance of the Contract (Performance Bond) and payment of obligations arising thereunder (Payment Bond) on the forms contained in Exhibits 3 and 2.

11.3.2 The Payment Bond and Performance Bond shall each be in the amount of the Contract Sum.

11.3.3 The Payment Bond and Performance Bond shall be in effect on the date the Contract is signed by University.

11.3.4 Contractor shall promptly furnish such additional security as may be required by University to protect its interests and those interests of persons or firms supplying labor or materials to the Work. Contractor shall furnish supplemental Payment and Performance Bonds each in the amount of the current Contract Sum at the request of the University.

11.3.5 Surety companies used by Contractor shall be, on the date the Contract is signed by University, an admitted surety insurer (as defined in the California Code of Civil Procedure Section 995.120).

11.3.6 The premiums for the Payment Bond and Performance Bond shall be paid by Contractor.

## **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

**12.1 UNCOVERING OF WORK**

12.1.1 If a portion of the Work is covered contrary to University's Representative's request or direction, or contrary to the requirements of the Contract Documents, it must, if required in writing by University's Representative, be uncovered for University's Representative's observation and be replaced at Contractor's expense without adjustment of the Contract Time or the Contract Sum.

12.1.2 If a portion of the Work has been covered, which is not required by the Contract Documents to be observed or inspected prior to its being covered and which University's Representative has not specifically requested to observe prior to its being covered, University's Representative may request to see such Work and it shall be uncovered and replaced by Contractor. If such Work is in accordance with the Contract Documents, the costs of uncovering and replacing the Work shall be added to the Contract Sum by Change Order; and if the uncovering and replacing of the Work extends the Contract Time, an appropriate adjustment of the Contract Time shall be made by Change Order. If such Work is not in accordance with the Contract Documents, Contractor shall pay such costs and shall not be entitled to an adjustment of the Contract Time or the Contract Sum.

**12.2 CORRECTION OF DEFECTIVE WORK AND GUARANTEE TO REPAIR PERIOD**

12.2.1 The term "Guarantee To Repair Period" means a period of 1 year, unless a longer period of time is specified, commencing as follows:

- .1 For any Work not described as incomplete in the Certificate of Substantial Completion, on the date of Substantial Completion.
- .2 For space beneficially occupied or for separate systems fully utilized prior to Substantial Completion pursuant to Article 9.6, from the first date of such Beneficial Occupancy or actual use, as established in a Certificate of Beneficial Occupancy.
- .3 For all Work other than .1 or .2 above, from the date of Final Completion.

12.2.2 Contractor shall (1) correct Defective Work that becomes apparent during the progress of the Work or during the Guarantee To Repair Period and (2) replace, repair, or restore to University's satisfaction any other parts of the Work and any other real or personal property which is damaged or destroyed as a result of Defective Work or the correction of Defective Work. Contractor shall promptly commence such correction, replacement, repair, or restoration upon notice from University's Representative or University, but in no case later than 10 days after receipt of such notice; and Contractor shall diligently and continuously prosecute such correction to completion. Contractor shall bear all costs of such correction, replacement, repair, or restoration, and all losses resulting from such Defective Work, including additional testing, inspection, and compensation for University's Representative's services and expenses. Contractor shall perform corrective Work at such times that are acceptable to University and in such a manner as to avoid, to the extent practicable, disruption to University's activities.

12.2.3 If immediate correction of Defective Work is required for life safety or the protection of property and is performed by University or Separate Contractors, Contractor shall pay to University all reasonable costs of correcting such Defective Work. Contractor shall replace, repair, or restore to University's satisfaction any other parts of the Work and any other real or personal property which is damaged or destroyed as a result of such Defective Work or the correction of such Defective Work.

12.2.4 Contractor shall remove from the Project site portions of the Work and materials which are not in accordance with the Contract Documents and which are neither corrected by Contractor nor accepted by University.

12.2.5 If Contractor fails to commence correction of Defective Work within 10 days after notice from University or University's Representative or fails to diligently prosecute such correction to completion, University may correct the Defective Work in accordance with Article 2.4; and, in addition, University may remove the Defective Work and store salvageable materials and equipment at Contractor's expense.

12.2.6 If Contractor fails to pay the costs of such removal and storage as required by Articles 12.2.4 and 12.2.5 within 10 days after written demand, University may, without prejudice to other remedies, sell such materials at auction or at private sale, or otherwise dispose of such material. Contractor shall be entitled to the proceeds of such sale, if any, in excess of the costs and damages for which Contractor is liable to University, including compensation for University's Representative's services and expenses. If such proceeds of sale do not cover costs and damages for which Contractor is liable to University, the Contract Sum shall be



reduced by such deficiency. If there are no remaining payments due Contractor or the remaining payments are insufficient to cover such deficiency, Contractor shall promptly pay the difference to University.

12.2.7 Contractor's obligations under this Article 12 are in addition to and not in limitation of its warranty under Article 3.4 or any other obligation of Contractor under the Contract Documents. Enforcement of Contractor's express warranties and guarantees to repair contained in the Contract Documents shall be in addition to and not in limitation of any other rights or remedies University may have under the Contract Documents or at law or in equity for Defective Work. Nothing contained in this Article 12 shall be construed to establish a period of limitation with respect to other obligations of Contractor under the Contract Documents. Establishment of the Guarantee To Repair Period relates only to the specific obligation of Contractor to correct the Work and in no way limits either Contractor's liability for Defective Work or the time within which proceedings may be commenced to enforce Contractor's obligations under the Contract Documents.

## **ARTICLE 13 TERMINATION OR SUSPENSION OF THE CONTRACT**

### **13.1 TERMINATION BY CONTRACTOR**

13.1.1 Subject to Article 13.1.2, Contractor shall have the right to terminate the Contract only upon the occurrence of one of the following:

- .1 Provided that University has not commenced reasonable action to remove any order of a court within the 90 day period, the Work is stopped for 90 consecutive days, through no act or fault of Contractor, any Subcontractor, or any employee or agent of Contractor or any Subcontractor, due to an issuance of an order of a court or other public authority having jurisdiction or due to an act of government, such as a declaration of a national emergency making material unavailable.
- .2 University fails to perform any material obligation under the Contract and fails to cure such default within 30 days, or University has not commenced to cure such default within 30 days where such cure will require a reasonable period beyond 30 days and diligently prosecutes the same to completion, after receipt of notice from Contractor stating the nature of such default(s).
- .3 Repeated suspensions by University, other than such suspensions as are agreed to by Contractor under Article 13.3, which constitute in the aggregate more than 20% of the Contract Time.

13.1.2 Upon the occurrence of one of the events listed in Article 13.1.1, Contractor may, upon 10 days additional notice to University and University's Representative, and provided that the condition giving rise to Contractor's right to terminate is continuing, terminate the Contract.

13.1.3 Upon termination by Contractor, University will pay to Contractor the sum determined by Article 13.4.4. Such payment will be the sole and exclusive remedy to which Contractor is entitled in the event of termination of the Contract by Contractor pursuant to Article 13.1; and Contractor will be entitled to no other compensation or damages and expressly waives the same.

### **13.2 TERMINATION BY UNIVERSITY FOR CAUSE**

13.2.1 University will have the right to terminate the Contract for cause at any time after the occurrence of any of the following events:

- .1 Contractor becomes insolvent or files for relief under the bankruptcy laws of the United States.
- .2 Contractor makes a general assignment for the benefit of its creditors or fails to pay its debts as the same become due.
- .3 A receiver is appointed to take charge of Contractor's property.
- .4 The commencement or completion of any Work activity on the critical path is more than 30 days behind the date set forth in the Contract Schedule for such Work activity, as a result of an Unexcusable Delay. For a Contract with a Contract Time of less than 300 days, the 30-day period shall be reduced to the number of days commensurate with 10% of the Contract Time.

.5 Contractor abandons the Work.

13.2.2 Upon the occurrence of any of the following events, University will have the right to terminate the Contract for cause if Contractor fails to promptly commence to cure such default and diligently prosecute such cure within 5 days after notice from University, or within such longer period of time as is reasonably necessary to complete such cure:

- .1 Contractor persistently or repeatedly refuses or fails to supply skilled supervisory personnel, an adequate number of properly skilled workers, proper materials, or necessary equipment to prosecute the Work in accordance with the Contract Documents.
- .2 Contractor fails to make prompt payment of amounts properly due Subcontractors after receiving payment from University.
- .3 Contractor disregards Applicable Code Requirements.
- .4 Contractor persistently or materially fails to execute the Work in accordance with the Contract Documents.
- .5 Contractor is in default of any other material obligation under the Contract Documents.
- .6 Contractor persistently or materially fails to comply with applicable safety requirements.

13.2.3 Upon any of the occurrences referred to in Articles 13.2.1 and 13.2.2, University may, at its election and by notice to Contractor, terminate the Contract and take possession of the Project site and all materials, supplies, equipment, tools, and construction equipment and machinery thereon owned by Contractor; accept the assignment of any or all of the subcontracts; and then complete the Work by any method University may deem expedient. If requested by University, Contractor shall remove any part or all of Contractor's materials, supplies, equipment, tools, and construction equipment and machinery from the Project site within 7 days of such request; and if Contractor fails to do so, University may remove or store, and after 90 days sell, any of the same at Contractor's expense.

13.2.4 If the Contract is terminated by University as provided in this Article 13.2, Contractor shall not be entitled to receive any further payment until the expiration of 35 days after Final Completion and acceptance of all Work by University.

13.2.5 If the unpaid balance of the Contract Sum exceeds the cost of completing the Work, including all additional costs and expenses made necessary thereby, including costs for University staff time, plus all losses sustained, including any liquidated damages provided under the Contract Documents, such excess shall be paid to Contractor. If such costs, expenses, losses, and liquidated damages exceed the unpaid balance of the Contract Sum, Contractor shall pay such excess to University.

13.2.6 No termination or action taken by University after termination shall prejudice any other rights or remedies of University provided by law or by the Contract Documents upon such termination; and University may proceed against Contractor to recover all losses suffered by University.

### **13.3 SUSPENSION BY UNIVERSITY FOR CONVENIENCE**

13.3.1 University may, at any time and from time to time, without cause, order Contractor, in writing, to suspend, delay, or interrupt the Work in whole or in part for such period of time, up to 90 days, as University may determine, with such period of suspension to be computed from the date of delivery of the written order. Such order shall be specifically identified as a "Suspension Order" under this Article 13.3. The Work may be stopped for such further period as the parties may agree. Upon receipt of a Suspension Order, Contractor shall, at University's expense, comply with its terms and take all reasonable steps to minimize costs allocable to the Work covered by the Suspension Order during the period of Work stoppage. Within 90 days after the issuance of the Suspension Order, or such extension to that period as is agreed upon by Contractor and University, University shall either cancel the Suspension Order or delete the Work covered by such Suspension Order by issuing a Change Order.

13.3.2 If a Suspension Order is canceled or expires, Contractor shall continue with the Work. A Change Order will be issued to cover any adjustments of the Contract Sum or the Contract Time necessarily caused by such suspension. Any Claim by Contractor for an adjustment of the Contract Sum or the Contract Time shall be made within 21 days after the end of the Work suspension. Contractor agrees that submission of its claim within said 21 days is an express condition precedent to its right to Arbitrate or Litigate such a claim.

13.3.3 The provisions of this Article 13.3 shall not apply if a Suspension Order is not issued by University. A Suspension Order shall not be required to stop the Work as permitted or required under any other provision of the Contract Documents.

#### **13.4 TERMINATION BY UNIVERSITY FOR CONVENIENCE**

13.4.1 University may, at its option, terminate this Contract, in whole or from time to time in part, at any time by giving notice to Contractor. Upon such termination, Contractor agrees to waive any claims for damages, including loss of anticipated profits, on account thereof; and, as the sole right and remedy of Contractor, University shall pay Contractor in accordance with Article 13.4.4.

13.4.2 Upon receipt of notice of termination under this Article 13.4, Contractor shall, unless the notice directs otherwise, do the following:

- .1 Immediately discontinue the Work to the extent specified in the notice.
- .2 Place no further orders or subcontracts for materials, equipment, services, or facilities, except as may be necessary for completion of such portion of the Work as is not discontinued.
- .3 Promptly cancel, on the most favorable terms reasonably possible, all subcontracts to the extent they relate to the performance of the discontinued portion of the Work.
- .4 Thereafter do only such Work as may be necessary to preserve and protect Work already in progress and to protect materials, plants, and equipment on the Project site or in transit thereto.

13.4.3 Upon such termination, the obligations of the Contract shall continue as to portions of the Work already performed and, subject to Contractor's obligations under Article 13.4.2, as to bona fide obligations assumed by Contractor prior to the date of termination.

13.4.4 Upon such termination, University shall pay to Contractor the sum of the following:

- .1 The amount of the Contract Sum allocable to the portion of the Work properly performed by Contractor as of the date of termination, less sums previously paid to Contractor.
- .2 Plus an amount equal to the lesser of \$50,000 or 5% of the difference between the Contract Sum and the amount of the Contract Sum allocable to the portion of the Work properly performed by Contractor as of the date of termination.
- .3 Plus previously unpaid costs of any items delivered to the Project site which were fabricated for subsequent incorporation in the Work.
- .4 Plus any proven losses with respect to materials and equipment directly resulting from such termination.
- .5 Plus reasonable demobilization costs.
- .6 Plus reasonable costs of preparing a statement of the aforesaid costs, expenses, and losses in connection with such termination.

The above payment shall be the sole and exclusive remedy to which Contractor is entitled in the event of termination of the Contract by University pursuant to Article 13.4; and Contractor will be entitled to no other compensation or damages and expressly waives same.

### **ARTICLE 14 STATUTORY AND OTHER REQUIREMENTS**

#### **14.1 PATIENT HEALTH INFORMATION**

Contractor acknowledges that its employees, agents, subcontractors, consultants and others acting on its behalf may come into contact with Patient Health Information ("PHI") while performing work at the Project Site. This contact is most likely rare and brief (e.g. walking through a clinic where patient files may be visible, overhearing conversations between physicians while working or touring a hospital, noticing a relative or acquaintance receiving treatment in a University facility, etc.). Contractor shall immediately notify University Representative of any such contact. Any and all forms of PHI should not be examined closer, copied, photographed, recorded in any manner, distributed or shared. Contractor will adopt procedures to ensure that

its employees, agents and subcontractors refrain from such activity. If Contractor, its employees, agents or subcontractors do further examine, copy, photograph, record in any manner, distribute or share this information, Contractor will report such actions immediately to the University Representative. Contractor will immediately take all steps necessary to stop any such actions and will ensure that no further violations of this contractual responsibility will occur. Contractor will report to University Representative within five (5) days after Contractor gives University Representative notice of the event/action of the steps taken to prevent future occurrences.

#### **14.2 NONDISCRIMINATION**

14.2.1 For purposes of this Article 14.2, the term Subcontractor shall not include suppliers, manufacturers, or distributors.

14.2.2 Contractor shall comply and shall ensure that all Subcontractors comply with Section 12900 through 12996, of the State of California Government Code.

14.2.3 Contractor agrees as follows during the performance of the Work:

- .1 Contractor shall provide equal treatment to, and shall not willfully discriminate against or allow harassment of any employee or applicant for employment on the basis of: race; color; religion; sex; age; ancestry; national origin; sexual orientation; physical or mental disability; veteran's status; medical condition (as defined in Section 12926 of the State of California Government Code and including cancer-related medical conditions and or genetic characteristics); genetic information (as defined in the Genetic Information Nondiscrimination Act of 2008 and including family medical history); marital status; gender identity, pregnancy, or citizenship (within the limits imposed by law or University's policy) or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994). Contractor will also take affirmative action to ensure that any such employee or applicant for employment is not discriminated against on any of the bases identified above. Such equal treatment shall apply, but not be limited to the following: employment; upgrade; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor also agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that qualified applicants will receive consideration for employment without regard to: race; color; religion; sex; age; ancestry; national origin; sexual orientation; physical or mental disability; veteran's status; medical condition (as defined in Section 12926 of the State of California Government Code and including cancer-related medical conditions and or genetic characteristics); genetic information (as defined in the Genetic Information Nondiscrimination Act of 2008 and including family medical history); marital status; gender identity, pregnancy, or citizenship (within the limits imposed by law or University's policy) or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994). For purposes of this provision: (1) "Pregnancy" includes pregnancy, childbirth, and medical conditions related to pregnancy and childbirth; and (2) "Service in the uniformed services" includes membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services.
- .2 Contractor and all Subcontractors will permit access to their records of employment, employment advertisements, application forms, and other pertinent data and records by University or any appropriate agency of the State of California designated by University for the purposes of investigation to ascertain compliance with this Article 14.2. The outcome of the investigation may result in the following:
  - .1 A finding of willful violation of the provisions of this Contract or of the Fair Employment Practices Act may be regarded by University as (1) a basis for determining that Contractor is not a "responsible bidder" as to future contracts for which such Contractor may submit bids or (2) a basis for refusing to accept or consider the bids of Contractor for future contracts.
  - .2 University may deem a finding of willful violation of the Fair Employment Practices Act to have occurred upon receipt of written notice from the Fair Employment

- Practices Commission that it has (1) investigated and determined that Contractor has violated the Fair Employment Practices Act and (2) issued an order under the State of California Government Code Section 12970 or obtained an injunction under Government Code Section 12973.
- .3 Upon receipt of such written notice from the Fair Employment Practices Commission, University may notify Contractor that, unless it demonstrates to the satisfaction of University within a stated period that the violation has been corrected, Contractor's bids on future projects will not be considered.
- .4 Contractor agrees that, should University determine that Contractor has not complied with this Article 14.2, Contractor shall forfeit to University, as a penalty, for each day or portion thereof, for each person who was denied employment as a result of such non-compliance, the penalties provided in Article 14.3 for violation of prevailing wage rates. Such penalty amounts may be recovered from Contractor; and University may deduct any such penalty amounts from the Contract Sum.
- .5 Nothing contained in this Article 14.2 shall be construed in any manner so as to prevent University from pursuing any other remedies that may be available at law.
- .6 Contractor shall meet the following standards for compliance and provide University with satisfactory evidence of such compliance upon University's request, which shall be evaluated in each case by University:
- .1 Contractor shall notify its Superintendent and other supervisory personnel of the nondiscrimination requirements of the Contract Documents and their responsibilities thereto.
- .2 Contractor shall notify all sources of employee referrals (including unions, employment agencies, and the State of California Department of Employment) of the nondiscrimination requirements of the Contract Documents by sending to such sources and by posting the Notice of Equal Employment Opportunity (EEO).
- .3 Contractor or its representative shall, through all unions with whom it may have agreements, develop agreements that (1) define responsibilities for nondiscrimination in hiring, referrals, upgrading, and training and (2) implement an affirmative nondiscrimination program, in terms of the unions' specific areas of skill and geography, such that qualified minority women, nonminority women, and minority men shall be available and given an equal opportunity for employment.
- .4 Contractor shall notify University of opposition to the nondiscrimination requirements of the Contract Documents by individuals, firms, or organizations during the term of the Contract.
- .7 Contractor shall include the provisions of the foregoing Articles 14.2.3.2.1 through 14.2.3.2.6 in all subcontracts with Subcontractors, so that such provisions will be binding upon each such Subcontractor.

### **14.3 PREVAILING WAGE RATES**

14.3.1 For purposes of this Article 14.3, the term Subcontractor shall not include suppliers, manufacturers, or distributors.

14.3.2 Contractor shall comply and shall ensure that all Subcontractors comply with prevailing wage law pursuant to the State of California Labor Code, including but not limited to Sections 1770, 1771, 1771.1, 1772, 1773, 1773.1, 1774, 1775, 1776, 1777.5, and 1777.6 of the State of California Labor Code. Compliance with these sections is required by this Contract. The Work under this Contract is subject to compliance monitoring and enforcement by the State of California Department of Industrial Relations.

14.3.3 The State of California Department of Industrial Relations has ascertained the general prevailing per diem wage rates in the locality in which the Work is to be performed for each craft, classification, or type of worker required to perform the Work. A copy of the general prevailing per diem wage rates will be on file at University's principal facility office and will be made available to any interested party upon request. Contractor shall post a copy of the general prevailing per diem wage rates as well as job site notices as prescribed by regulation at the job site. By this reference, such schedule is made part of the Contract Documents. Contractor shall pay not less than the prevailing wage rates, as specified in the schedule and any amendments thereto,

to all workers employed by Contractor in the execution of the Work. Contractor shall cause all subcontracts to include the provision that all Subcontractors shall pay not less than the prevailing rates to all workers employed by such Subcontractors in the execution of the Work. Contractor shall forfeit to University, as a penalty, not more than \$200 for each calendar day or portion thereof for each worker that is paid less than the prevailing rates as determined by the Director of Industrial Relations for the work or craft in which the worker is employed for any portion of the Work done by Contractor or any Subcontractor. The amount of this penalty shall be determined pursuant to applicable law. Such forfeiture amounts may be deducted from the Contract Sum or sought directly from the surety under its Performance Bond if there are insufficient funds remaining in the Contract Sum. Contractor shall also pay to any worker who was paid less than the prevailing wage rate for the work or craft for which the worker was employed for any portion of the Work, for each day, or portion thereof, for which the worker was paid less than the specified prevailing per diem wage rate, an amount equal to the difference between the specified prevailing per diem wage rate and the amount which was paid to the worker. Review of any civil wage and penalty assessment shall be made pursuant to section 1742 of the California Labor Code.

#### **14.4 PAYROLL RECORDS**

14.4.1 For purposes of this Article 14.4, the term Subcontractor shall not include suppliers, manufacturers, or distributors.

14.4.2 Contractor and all Subcontractors shall keep an accurate payroll record, showing the name, address, social security number, job classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyworker, apprentice, worker, or other employee employed in connection with the Work. All payroll records shall be certified as being true and correct by Contractor or Subcontractors keeping such records; and the payroll records shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

- .1 A certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or the employee's authorized representative on request.
- .2 A certified copy of all payroll records shall be made available for inspection upon request to University, the State of California Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the State of California Division of Industrial Relations.
- .3 A certified copy of all payroll records shall be made available upon request by the public for inspection or copies thereof made; provided, however, that the request by the public shall be made to either University, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. The public shall not be given access to such records at the principal offices of Contractor or Subcontractors. Any copy of the records made available for inspection as copies and furnished upon request to the public or any public agency by University shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of Contractor awarded the Contract or performing the Contract shall not be marked or obliterated.

14.4.3 Contractor shall file a certified copy of the payroll records with the entity that requested the records within 10 days after receipt of a written request. Contractor shall inform University of the location of such payroll records for the Project, including the street address, city, and county; and Contractor shall, within 5 working days, provide notice of change of location of such records. In the event of noncompliance with the requirements of this Article 14.4 or with the State of California Labor Code Section 1776, Contractor shall have 10 days in which to comply following receipt of notice specifying in what respects Contractor must comply. Should noncompliance still be evident after the 10 day period, Contractor shall forfeit to University, as a penalty, \$100 for each day, or portion thereof, for each worker, until strict compliance is accomplished. Such forfeiture amounts may be deducted from the Contract Sum.

#### **14.5 APPRENTICES**

14.5.1 For purposes of this Article 14.5, the term Subcontractor shall not include suppliers, manufacturers, and distributors.

14.5.2 Only apprentices, as defined in the State of California Labor Code Section 3077, who are in training

under apprenticeship standards and written apprentice agreements under Chapter 4, Division 3, of the State of California Labor Code, are eligible to be employed by Contractor and Subcontractors as apprentices. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and written apprentice agreements under which the apprentice is training and in accordance with prevailing wage law pursuant to the Labor Code, including but not limited to Section 1777.5. The Contractor bears responsibility for compliance with this section for all apprenticeable occupations.

14.5.3 Every apprentice shall be paid the standard wage to apprentices, under the regulations of the craft or trade at which the apprentice is employed, and shall be employed only at the Work in the craft or trade to which the apprentice is indentured.

14.5.4 When Contractor or Subcontractors employ workers in any apprenticeship craft or trade on the Work, Contractor or Subcontractors shall 1) send contract award information to the applicable joint apprenticeship committee that can supply apprentices to the site of the public work and 2) apply to the joint apprenticeship committee, which administers the apprenticeship standards of the craft or trade in the area of the Project site, for a certificate approving Contractor or Subcontractors under the apprenticeship standards for the employment and training of apprentices in the area of the Project site. The committee will issue a certificate fixing the number of apprentices or the ratio of apprentices to journeypersons who shall be employed in the craft or trade on the Work. The ratio will not exceed that stipulated in the apprenticeship standards under which the joint apprenticeship committee operates; but in no case shall the ratio be less than 1 hour of apprentice work for every 5 hours of journeyperson work, except as permitted by law. Contractor or Subcontractors shall, upon the issuance of the approval certificate in each such craft or trade, employ the number of apprentices or the ratio of apprentices to journeypersons fixed in the certificate issued by the joint apprenticeship committee or present an exemption certificate issued by the Division of Apprenticeship Standards.

14.5.5 "Apprenticeship craft or trade," as used in this Article 14.5, shall mean a craft or trade determined as an apprenticeship occupation in accordance with rules and regulations prescribed by the Apprenticeship Council.

14.5.6 If Contractor or Subcontractors employ journeyworkers or apprentices in any apprenticeship craft or trade in the area of the Project site, and there exists a fund for assisting to allay the cost of the apprenticeship program in the trade or craft, to which fund or funds other contractors in the area of the Project site are contributing, Contractor and Subcontractors shall contribute to the fund or funds in each craft or trade in which they employ journeyworkers or apprentices on the Work in the same amount or upon the same basis and in the same manner done by the other contractors. Contractor may include the amount of such contributions in computing its bid for the Contract; but if Contractor fails to do so, it shall not be entitled to any additional compensation therefor from University.

14.5.7 In the event Contractor willfully fails to comply with this Article 14.5, it will be considered in violation of the requirements of the Contract.

14.5.8 Nothing contained herein shall be considered or interpreted as prohibiting or preventing the hiring by Contractor or Subcontractors of journeyworker trainees who may receive on-the-job training to enable them to achieve journeyworker status in any craft or trade under standards other than those set forth for apprentices.

## **14.6 WORK DAY**

14.6.1 Contractor shall not permit any worker to labor more than 8 hours during any 1 day or more than 40 hours during any 1 calendar week, except as permitted by law and in such cases only upon such conditions as are provided by law. Contractor shall forfeit to University, as a penalty, \$25 for each worker employed in the execution of this Contract by Contractor, or any Subcontractor, for each day during which such worker is required or permitted to work more than 8 hours in any 1 day and 40 hours in any 1 calendar week in violation of the terms of this Article 14.6 or in violation of the provisions of any law of the State of California. Such forfeiture amounts may be deducted from the Contract Sum. Contractor and each Subcontractor shall keep, or cause to be kept, an accurate record showing the actual hours worked each day and each calendar week by each worker employed on the Project, which record shall be kept open at all reasonable hours to the inspection of University, its officers and agents, and to the inspection of the appropriate enforcement agency of the State of California.

**ARTICLE 15**  
**MISCELLANEOUS PROVISIONS**

**15.1 GOVERNING LAW**

15.1.1 The Contract shall be governed by the law of the State of California.

**15.2 SUCCESSORS AND ASSIGNS**

15.2.1 University and Contractor respectively bind themselves and their successors, permitted assigns, and legal representatives to the other party and to the successors, permitted assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract, in whole or in part, without prior written consent of the other party. Notwithstanding any such assignment, each of the original contracting parties shall remain legally responsible for all of its obligations under the Contract.

**15.3 RIGHTS AND REMEDIES**

15.3.1 All University's rights and remedies under the Contract Documents will be cumulative and in addition to and not in limitation of all other rights and remedies of University under the Contract Documents or otherwise available at law or in equity.

15.3.2 No action or failure to act by University or University's Representative will constitute a waiver of a right afforded them under the Contract, nor will such action or failure to act constitute approval of or acquiescence in a condition or breach thereunder, except as may be specifically agreed in writing. No waiver by University or University's Representative of any condition, breach or default will constitute a waiver of any other condition, breach or default; nor will any such waiver constitute a continuing waiver.

15.3.3 No provision contained in the Contract Documents shall create or give to third parties any claim or right of action against University, University's Representative, or Contractor.

**15.4 SURVIVAL**

15.4.1 The provisions of the Contract which by their nature survive termination of the Contract or Final Completion, including all warranties, indemnities, payment obligations, and University's right to audit Contractor's books and records, shall remain in full force and effect after Final Completion or any termination of the Contract.

**15.5 COMPLETE AGREEMENT**

15.5.1 The Contract Documents constitute the full and complete understanding of the parties and supersede any previous agreements or understandings, oral or written, with respect to the subject matter hereof. The Contract may be modified only by a written instrument signed by both parties or as provided in Article 7.

**15.6 SEVERABILITY OF PROVISIONS**

15.6.1 If any one or more of the provisions contained in the Contract Documents should be invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

**15.7 UNIVERSITY'S RIGHT TO AUDIT**

15.7.1 University and entities and agencies designated by University will have access to and the right to audit and the right to copy at University's cost all of Contractor's books, records, contracts, correspondence, instructions, drawings, receipts, vouchers, purchase orders, and memoranda relating to the Work. Contractor shall preserve all such records and other items during the performance of the Contract and for a period of at least 3 years after Final Completion.

**15.8 METHODS OF DELIVERY FOR SPECIFIED DOCUMENTS**



15.8.1 The following documents must be delivered in a manner specified in Article 15.8.2:

- .1 Contractor Notices of election to litigate or arbitrate;
- .2 Written demand for an informal conference to meet and confer pursuant to Article 4.5;
- .3 University's written statement identifying remaining disputes following informal conference pursuant to Article 4.6;
- .4 Written demand for non-binding mediation pursuant to Article 4.6;
- .5 Contractor claims pursuant to Article 4.3;
- .6 Contractor notices of conditions pursuant to Articles 3.17, 3.18, or 3.19;
- .7 University's notices of Contractor's failure to perform and/or correct defective work pursuant to Articles 4.1.6, 12.2 and 13.2.3;
- .8 University's notice to stop work pursuant to Article 2.3.1;
- .9 Notices of termination or suspension pursuant to Article 13.

15.8.2 Delivery methods for documents specified in Article 15.8.1:

- .1 By personal delivery.
- .2 Sent by facsimile copy where receipt is confirmed.
- .3 Sent by Express Mail, or another method of delivery providing for overnight delivery where receipt is confirmed.
- .4 Sent by registered or certified mail, postage prepaid, return receipt requested.

15.8.3 The documents identified in Article 15.8.1 shall only be effective if delivered in the manner specified in Article 15.8.2. Subject to the forgoing, such documents shall be deemed given and received upon actual receipt in the case of all except registered or certified mail; and in the case of registered or certified mail, on the date shown on the return receipt or the date delivery during normal business hours was attempted. Delivery of the specified documents shall be made at the respective street addresses set forth in the Agreement. Such street addresses may be changed by notice given in accordance with this Article 15.8.

## **15.9 TIME OF THE ESSENCE**

15.9.1 Time limits stated in the Contract Documents are of the essence of the Contract.

## **15.10 MUTUAL DUTY TO MITIGATE**

15.10.1 University and Contractor shall use all reasonable and economically practicable efforts to mitigate delays and damages to the Project and to one another with respect to the Project, regardless of the cause of such delay or damage.

## **15.11 UC FAIR WAGE**

Contractor shall pay all persons providing construction services and/or any labor on site, including any University location, no less than the UC Fair Wage (defined as \$13 per hour as of 10/1/15, \$14 per hour as of 10/1/16, and \$15 per hour as of 10/1/17) and shall comply with all applicable federal, state and local working condition requirements.

**SUPPLEMENTARY CONDITIONS**

**1. MODIFICATION OF GENERAL CONDITIONS, ARTICLE 3 – CONTRACTOR**

**Article 3.13.2 is replaced as follows:**

3.13.2 Contractor shall, on a daily basis during performance of the Work, keep the Project site and surrounding area free from the accumulation of dirt, waste materials, and rubbish caused by Contractor. If cleanup is not performed on a daily basis, University may perform cleanup as necessary, and allocate the cost for such cleanup between those firms responsible. Contractor shall remove all dirt, waste material, and rubbish caused by Contractor, along with any tools, equipment, machinery, and surplus materials from the Project site and surrounding area at the completion of the Work. Cleanup of unclean jobsite conditions must be within 24 hours after such notice has been given to Contractor by University’s Representative.

**The following article is added to Article 3 of the General Conditions:**

3.22 DAILY REPORTS

3.22.1 Contractor shall submit daily reports, on the form contained in the Exhibits, to the University’s Representative not later than 2:00 p.m. each workday.

**2. MODIFICATION OF GENERAL CONDITIONS, ARTICLE 3 – CONTRACTOR**

**Article 3.8.4 is replaced as follows:**

3.8. SUPERINTENDENT

3.8.4 The Superintendent may perform the Work of any trade, pickup materials, or perform any Work not directly related to the supervision and coordination of the Work at the Project site when Work is in progress.

**3. MODIFICATION OF GENERAL CONDITIONS, ARTICLE 7 - CHANGES IN THE WORK**

The following article is added to Article 7 of the General Conditions:

7.7. LETTER OF INSTRUCTION

7.7.1 The University’s Representative may issue Letter of Instruction (as shown in Exhibit 26) which make interpretations or clarifications of the Contract Documents that do not change the scope of Work or involve an adjustment of the Contract Sum or the Contract Time and that are consistent with the intent of the Contract Documents. Letter of Instruction shall be binding upon Contractor. Contractor shall promptly carry out the requirements of such Letter of Instruction.

**4. MODIFICATION OF GENERAL CONDITIONS, ARTICLE 8 - CONTRACT TIME**

8.4.1.6.11 “Rainy weather“, but only for such days of rain that are in excess of the number of days specified:

- October – 1 day
- November – 2 days
- December -3 days
- January – 5 days
- February - 6 days
- March – 5 days
- April – 3 days
- May – September – 0 days

In order for a day to be considered a “day of rainy weather” for the purpose of determining whether Contractor is entitled to a time extension, all of the following conditions must be met:

.3 the Contractor must have employed all reasonable rain mitigation measures to enable the work to continue on the day; and

.4 all other conditions of Article 8 must be met.

When the total number of rainy weather days within a month does not exceed the number of days specified; the remaining days shall carry forward to the next month of the project. Remaining rain days for the calendar year shall carry forward to the next calendar year through final completion of the project.

**4. MODIFICATION OF GENERAL CONDITIONS, ARTICLE 9 – PAYMENTS AND COMPLETION**

Article 9.4.1 is replaced as follows:

**9.4 CERTIFICATE FOR PAYMENT**

9.4.1 If Contractor has submitted an Application For Payment in accordance with Article 9.3, University's Representative shall, not later than 10 working days after the date of receipt of the Application For Payment, issue to University, with a copy to Contractor, a Certificate For Payment for such amount as University's Representative determines to be properly due.

**MODIFICATION OF GENERAL CONDITIONS, ARTICLE 11 - INSURANCE AND BONDS**

Insurance required by Paragraphs 11.1.2.1 and 11.1.2.2 shall be (i) issued by companies with a Best rating of A- or better, and a financial classification of VIII or better (or an equivalent rating by Standard & Poor or Moody's) or (ii) guaranteed, under terms consented to by the University (such consent to not be unreasonably withheld), by companies with a Best rating of A- or better, and a financial classification of VIII or better (or an equivalent rating by Standard & Poor or Moody's). Such insurance shall be written for not less than the following:

	<u>Minimum Requirement</u>
11.1.2.1 Commercial Form General Liability Insurance- Limits of Liability	
Each Occurrence-Combined Single Limit for Bodily Injury and Property	\$1,000,000
Products-Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
General Aggregate	\$2,000,000

Insurance required by Paragraphs 11.1.2.1 and 11.1.2.2 shall be (i) issued by companies with a Best rating of A- or better, and a financial classification of VIII or better (or an equivalent rating by Standard & Poor or Moody's) or (ii) guaranteed, under terms consented to by the University (such consent to not be unreasonably withheld), by companies with a Best rating of A- or better, and a financial classification of VIII or better (or an equivalent rating by Standard & Poor or Moody's). Such insurance shall be written for not less than the following:

	<u>Minimum Requirement</u>
11.1.2.2 Business Automobile Liability Insurance-Limits of Liability	
Each Accident-Combined Single Limit for Bodily Injury and Property Damage	\$2,000,000

Insurance required by Paragraph 11.1.2.3 shall be issued by companies (i) that have a Best rating of B+ or better, and a financial classification of VIII or better (or an equivalent rating by Standard & Poor or Moody's); or (ii) that are acceptable to the University. Such insurance shall be written for not less than the following:

- 11.1.2.3 WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY – (as required by Federal and State of California law).

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Exhibit 1	Certificate of Insurance
Exhibit 2	Payment Bond
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**EXHIBIT 1 – CERTIFICATE OF INSURANCE**

DATE ISSUED: \_\_\_\_\_

BROKER/AGENT	<b>COMPANIES AFFORDING COVERAGE</b>		
	COMPANY A		
NAMED INSURED	COMPANY B		
	COMPANY C		
	COMPANY D		

**COVERAGES**

This is to certify that policies of insurance listed below have been issued to the insured named above for the policy period indicated. This certificate or verification of insurance is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFF. DATE (M/D/Y)	POLICY EXP. DATE (M/D/Y)		LIMITS	DEDUCTIBLE
	<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL FORM <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCURRENCE <input type="checkbox"/> SEVERABILITY OF INTEREST CLAUSE <input type="checkbox"/> CROSS LIABILITY CLAUSE					GENERAL AGGREGATE    \$ PRODUCTS/COMPLETED OPERATIONS AGGREGATE    \$ PERSONAL & ADVERTISING INJURY    \$ EACH OCCURRENCE    \$ FIRE DAMAGE (ANY ONE FIRE)    \$ MEDICAL EXPENSE (ANY ONE PERSON)    \$	\$
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO (CODE 1) <input type="checkbox"/> ALL OWNED AUTOS (CODE 2) <input type="checkbox"/> SCHEDULED AUTOS (CODE 7) <input type="checkbox"/> HIRED AUTOS (CODE 8) <input type="checkbox"/> NON-OWNED AUTOS (CODE 9) <input type="checkbox"/> OTHER					CSL    \$ BODILY INJURY (PER PERSON)    \$ BODILY INJURY (PER ACCIDENT)    \$ PROPERTY DAMAGE    \$	\$
	<b>EXCESS LIABILITY</b> <input type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER <input type="checkbox"/> CLAIMS MADE    OCCURRENCE					EACH OCCURRENCE    \$ AGGREGATE    \$	
	<b>PROFESSIONAL LIABILITY*</b> <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCURRENCE					EACH OCCURRENCE    \$ AGGREGATE    \$	
	<b>WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY*</b>					<b>AS REQUIRED BY FEDERAL AND CALIFORNIA LAW</b>	

**SPECIAL PROVISIONS:**  
 \*Special Provision #1 and #2 below do not apply to this coverage.

- THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, ITS OFFICERS, AGENTS, EMPLOYEES, CONSULTANTS, REPRESENTATIVES, AND REPRESENTATIVE'S CONSULTANTS ARE INCLUDED AS ADDITIONAL INSURERS BUT ONLY IN CONNECTION WITH **907016 Lantern Café Upgrade**
- THIS INSURANCE SHALL BE PRIMARY INSURANCE AS RESPECTS THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, ITS OFFICERS, AGENTS, AND EMPLOYEES. ANY INSURANCE OR SELF-INSURANCE MAINTAINED BY THE REGENTS OF THE UNIVERSITY OF CALIFORNIA SHALL BE EXCESS OF AND NONCONTRIBUTORY WITH THIS INSURANCE.
- THE PROVISIONS UNDER PARAGRAPHS (1&2) OF THIS SECTION, "SPECIAL PROVISIONS", SHALL APPLY TO CLAIMS, COSTS, INJURIES OR DAMAGES BUT ONLY IN PROPORTION TO AND TO THE EXTENT SUCH CLAIMS, COSTS, INJURIES, OR DAMAGES ARE CAUSED BY OR RESULT FROM THE NEGLIGENT ACTS OR OMISSIONS OF THE NAMED INSURED.
- SHOULD ANY OF THE INSURANCE PROGRAMS DESCRIBED HEREIN BE MATERIALLY MODIFIED OR CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL MAIL THIRTY (30) DAYS (TEN [10] DAYS FOR NON-PAYMENT OF PREMIUM) WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED BELOW.

CERTIFICATE HOLDER: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA. FORWARD TO: _____ Design & Construction UNIVERSITY OF CALIFORNIA, MERCED 5200 N. Lake Rd Merced, CA 95343	THE UNDERSIGNED CERTIFIES THAT HE/SHE IS AUTHORIZED TO SIGN THIS CERTIFICATE AND THAT THE SPECIAL PROVISIONS DESCRIBED HEREIN HAVE BEEN MADE A PART OF THE POLICY(IES) SHOWN ABOVE.  _____ AUTHORIZED REPRESENTATIVE
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**PAYMENT BOND**

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, The Regents of the University of California ("The Regents") has awarded to \_\_\_\_\_ as Principal a contract dated the \_\_\_\_\_ day of \_\_\_\_\_, 2018 (the "Contract") for the work described as follows:

**KOLLIGIAN LIBRARY 3W REMOVATION  
UNIVERSITY OF CALIFORNIA MERCED CAMPUS  
MERCED COUNTY, MERCED CALIFORNIA**

AND WHEREAS, Principal is required to furnish a bond in connection with the Contract to secure the payment of claims of laborers, mechanics, material suppliers, and other persons as provided by law;

NOW, THEREFORE, we, the undersigned Principal and \_\_\_\_\_ as Surety, are held and firmly bound unto The Regents in the sum of \$ \_\_\_\_\_ for which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, or its heirs, executors, administrators, successors, or assigns approved by The Regents, or its subcontractors shall fail to pay any of the persons named in State of California Civil Code Section 3181, or amounts due under the State of California Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the State of California Employment Development Department from the wages of employees of Principal and subcontractors pursuant to Section 13020 of the State of California Unemployment Insurance Code with respect to such work and labor, that Surety will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall become and be null and void.

This bond shall inure to the benefit of any of the persons named in State of California Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Surety, for value received, hereby expressly agrees that no extension of time, change, modification, alteration, deletion, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder, shall in any way affect the obligation of this bond; and it does hereby waive notice of any such extension of time, change, modification, alteration, deletion, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder.

Surety's obligations hereunder are independent of the obligations of any other surety for the payment of claims of laborers, mechanics, material suppliers, and other persons in connection with the Contract; and suit may be brought against Surety and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing The Regents' rights against the others.

In the event suit is brought upon this bond, the parties not prevailing in such suit shall pay reasonable attorneys' fees and costs incurred by the prevailing parties in such suit.

Correspondence or claims relating to this bond shall be sent to Surety at the address set forth below.

IN WITNESS WHEREOF, we have hereunto set our hands this \_\_\_\_\_  
day of \_\_\_\_\_, 20 .

Principal: \_\_\_\_\_  
(Name of Firm)

Surety: \_\_\_\_\_  
(Name of Firm)

By: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Title: \_\_\_\_\_

Address for Notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOTE: Notary acknowledgement for Surety and Surety's Power of Attorney must be attached.**



Bond No.: \_\_\_\_\_

**PERFORMANCE BOND**

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, The Regents of the University of California ("The Regents") has awarded to \_\_\_\_\_ as Principal a contract dated the \_\_\_\_\_ day of \_\_\_\_\_, 2018 (the "Contract"), which Contract is by this reference made a part hereof, for the work described as follows:

**KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA MERCED CAMPUS  
MERCED COUNTY, MERCED CALIFORNIA**

AND WHEREAS, Principal is required to furnish a bond in connection with the Contract, guaranteeing the faithful performance thereof;

NOW, THEREFORE, we, the undersigned Principal and \_\_\_\_\_ as Surety are held and firmly bound unto The Regents in the sum of \$ \_\_\_\_\_, to be paid to The Regents or its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, or its heirs, executors, administrators, successors, or assigns approved by The Regents, shall promptly and faithfully perform the covenants, conditions, and agreements of the Contract during the original term and any extensions thereof as may be granted by The Regents, with or without notice to Surety, and during the period of any guarantees or warranties required under the Contract, and shall also promptly and faithfully perform all the covenants, conditions, and agreements of any alteration of the Contract made as therein provided, notice of which alterations to Surety being hereby waived, on Principal's part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify, defend, protect, and hold harmless The Regents as stipulated in the Contract, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and effect.

No extension of time, change, alteration, modification, or addition to the Contract, or of the work required thereunder, shall release or exonerate Surety on this bond or in any way affect the obligation of this bond; and Surety does hereby waive notice of any such extension of time, change, alteration, modification, or addition.

Whenever Principal shall be and declared by The Regents to be in default under the Contract, Surety shall promptly remedy the default, or shall promptly:

1. Undertake through its agents or independent contractors, reasonably acceptable to The Regents, to complete the Contract in accordance with its terms and conditions and to pay and perform all obligations of Principal under the Contract, including without limitation, all obligations with respect to warranties, guarantees, and the payment of liquidated damages, or, at Surety's election, or, if required by The Regents.

2. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and, upon determination by The Regents of the lowest responsible bidder, arrange for a contract between such bidder and The Regents and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Sum, and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees, and the payment of liquidated damages; but, in any event, Surety's total obligations hereunder shall not exceed the amount set forth in the third paragraph hereof. The term "balance of the Contract Sum," as used in this paragraph, shall mean the total amount payable by The Regents to the Principal under the Contract and any amendments thereto, less the amount paid by The Regents to Principal.

Surety's obligations hereunder are independent of the obligations of any other surety for the performance of the Contract, and suit may be brought against Surety and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing The Regents' rights against the others.

No right of action shall accrue on this bond to or for the use of any person or corporation other than The Regents or its successors or assigns.

Surety may join in any arbitration proceedings brought under the Contract and shall be bound by any arbitration award.

In the event suit is brought upon this bond by The Regents, Surety shall pay reasonable attorney's fees and costs incurred by The Regents in such suit.

Correspondence or claims relating to this bond shall be sent to Surety at the address set forth below.

IN WITNESS WHEREOF, we have hereunto set our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20 .

Principal: \_\_\_\_\_ Surety: \_\_\_\_\_  
(Name of Firm) (Name of Firm)

By: \_\_\_\_\_ By: \_\_\_\_\_

Title: \_\_\_\_\_ Title: \_\_\_\_\_

Address for Notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOTE: Notary acknowledgement for Surety and Surety's Power of Attorney must be attached.**

**APPLICATION FOR PAYMENT**

Number: \_\_\_\_\_ Period to: \_\_\_\_\_

TO UNIVERSITY: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, MERCED, UNIVERSITY OF CALIFORNIA, 5200 N. LAKE ROAD, MERCED, CA 95344 AND UNIVERSITY'S REPRESENTATIVE:

FROM CONTRACTOR: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
PROJECT NAME: KOLLIGIAN LIBRARY 3W RENOVATION  
PROJECT NUMBER: 908074  
FACILITY: University of California, Merced  
CONTRACT DATE: \_\_\_\_\_  
APPLICATION DATE: \_\_\_\_\_

**CHANGE ORDER SUMMARY:** Additions Deductions

Change Orders approved in previous months: Total: \_\_\_\_\_

Change Orders approved this month:

Number:	Date Approved:	
_____	_____	_____
_____	_____	_____
_____	_____	_____
Total:		_____

NET CHANGE BY CHANGE ORDERS: \_\_\_\_\_

Application is made for payment under the Contract as shown below and in Schedule 1 attached hereto:

- |  |          |          |
|--|----------|----------|
| 1. ORIGINAL CONTRACT SUM                                     |          | \$ _____ |
| 2. NET CHANGE BY CHANGE ORDERS                               |          | \$ _____ |
| 3. CONTRACT SUM TO DATE (Line 1 ± Line 2)                    |          | \$ _____ |
| 4. TOTAL AMOUNT COMPLETED TO DATE (Column E on Schedule 1)   | \$ _____ |          |
| 5. RETENTION: 5% of Completed Work (Column H on Schedule 1)* | \$ _____ |          |
| a. Current Value of Securities Deposited in Escrow           | \$ _____ |          |
| b. Current Value of Retention Deposited in Escrow            | \$ _____ |          |
| c. Retention Held by University                              | \$ _____ |          |
| Current Retention Value (a + b + c)                          | \$ _____ |          |
| 6. TOTAL EARNED LESS RETENTION (Line 4 less Line 5)          |          | \$ _____ |
| 7. TOTAL AMOUNT PREVIOUSLY PAID                              | \$ _____ |          |
| 8. CURRENT PAYMENT DUE (Line 6 less Line 7)                  |          | \$ _____ |
| 9. BALANCE TO FINISH, PLUS RETENTION (Line 3 less Line 6)    | \$ _____ |          |

\*Pursuant to Article 9.2.2 of the General Conditions.

The undersigned Contractor hereby represents and warrants to University that all Work, for which Certificates For Payment have previously been issued and payment received from University, is free and clear of all claims, stop notices, security interests, and encumbrances in favor of Contractor, any Subcontractor, and any other persons or firms entitled to make claims by reason of having provided labor, materials, or equipment related to the Work.

The following Schedules are attached and incorporated herein, and made a part of this Application For Payment:

- Schedule 1 Cost Breakdown Schedule
- Schedule 2 Certification of Current Market Value of Securities in Escrow in Lieu of Retention
- Schedule 3 List of Subcontractors
- Schedule 4 Declaration of Releases of Claims

\_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

DECLARATION

I, \_\_\_\_\_, hereby declare that I am the \_\_\_\_\_ of Contractor submitting this Application For Payment; that I am duly authorized to execute and deliver this Application For Payment on behalf of Contractor; and that all information set forth in this Application For Payment and all Schedules attached hereto are true, accurate, and complete as of its date.

I declare, under penalty of perjury, that the foregoing is true and correct and that this declaration was subscribed at

\_\_\_\_\_, \_\_\_\_\_, State of \_\_\_\_\_

on \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

KOLLIGIAN LIBRARY 3W RENOVATION  
 UNIVERSITY OF CALIFORNIA, MERCED  
 MERCED, CALIFORNIA

Project No.: 908074

PROJECT NAME: \_\_\_\_\_

APPLICATION NUMBER: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

APPLICATION DATE: \_\_\_\_\_

FACILITY: University of California, Merced

PERIOD TO: \_\_\_\_\_

CONTRACT DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

SCHEDULE 1  
 TO  
 APPLICATION FOR PAYMENT  
 COST BREAKDOWN

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>
ITEM NO.	DESCRIPTION OF WORK ACTIVITY OR OTHER ITEM	SCHEDULED VALUE	% COMPLETE TO DATE	TOTAL AMOUNT COMPLETED TO DATE (C x D)	TOTAL AMOUNT COMPLETED ON PRIOR APPLICATION FOR PAYMENT	AMOUNT OF THIS APPLICATION (E - F)	RETENTION (5% x E)
001	Bonds/Insurance						
002	Mobilization						
003	Submittals						
004	Shop Drawings						
005							
006	As-built Update						
007	Closeout Documents						
008	Punchlist						
009	Warranty						
010	Commissioning/ Start Up						

KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA  
PROJECT NAME: \_\_\_\_\_

Project No.: 908074

CONTRACTOR: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

APPLICATION NUMBER: \_\_\_\_\_

SCHEDULE 2  
TO  
APPLICATION FOR PAYMENT

CERTIFICATION OF CURRENT MARKET VALUE  
OF SECURITIES IN ESCROW IN LIEU OF RETENTION

As of \_\_\_\_\_, 20\_\_ (not earlier than 5 days prior to the date of the Application For Payment of which this certification is a part), the aggregate market value of securities on deposit in Escrow

Account No. \_\_\_\_\_ with \_\_\_\_\_  
(Escrow Agent)

is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

\_\_\_\_\_  
(Escrow Agent)

\_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Title)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

NOTE: Notary acknowledgment for Contractor and Escrow Agent must be attached.

PROJECT NAME: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_  
 PROJECT NUMBER: \_\_\_\_\_  
 APPLICATION NUMBER: \_\_\_\_\_

SCHEDULE 3  
 TO  
APPLICATION FOR PAYMENT  
LIST OF SUBCONTRACTORS

Subcontractors listed below are all Subcontractors furnishing labor, services, or materials for the period referred to in the Application For Payment referenced above, of which this Schedule 3 is a part:

<u>Name of Subcontractor</u>	<u>Subcontracted Work Activity</u>	<u>Date Work Activity Completed</u>

\_\_\_\_\_  
 (Contractor)

By: \_\_\_\_\_  
 (Name)

\_\_\_\_\_  
 (Title)

Date: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

APPLICATION NUMBER: \_\_\_\_\_

SCHEDULE 4  
TO  
APPLICATION FOR PAYMENT

DECLARATION OF RELEASE OF CLAIMS

Contractor hereby certifies that attached hereto are releases and waivers of claims and stop notices from all Subcontractors furnishing labor, services, or materials covered by the Certificate For Payment dated \_\_\_\_\_, 20\_\_\_\_, except those listed below:

\_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

Date: \_\_\_\_\_



**SELECTION OF RETENTION OPTIONS**

I (we): \_\_\_\_\_  
(Contractor)

**SELECTION OPTION 1** \_\_\_\_\_ Check here for Option 1  
University will withhold retention

**OR SELECTION OPTION 2** \_\_\_\_\_ Check here for Option 2  
herewith elect to substitute securities in the form of:

\_\_\_\_\_ (Type of security)  
in lieu of retention being withheld by University for the  
above-referenced project.

**OR SELECT OPTION 3** \_\_\_\_\_ Check here for Option 3  
herewith elect to have retention on the above-referenced  
project paid directly into the Escrow Account.

\_\_\_\_\_ (Type of Security to be purchased)

An Escrow Account will be opened with\*\*:  
\_\_\_\_\_ (Name of state or federally chartered bank in  
California)

whose address is:  
\_\_\_\_\_ (Street)

\_\_\_\_\_ (City, County)

\_\_\_\_\_ (State, Zip Code)

On Behalf of Contractor\*  
\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Title)

On Behalf of University Acknowledged and  
Approved  
\_\_\_\_\_  
(Signature)

Michael McLeod  
\_\_\_\_\_  
(Printed Name)

Vice Chancellor/Chief Operating Officer  
Physical Operations, Planning & Development  
\_\_\_\_\_  
(Title)

\*Signature shall be by the authorized party who signs the Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention ("Escrow Agreement").

\*\* Note: Contractor and its surety bear the risk of failure of the bank selected.

Note: If a completed and signed Escrow Agreement is not submitted with this form, University will not allow deposit of securities in lieu of retention.

RETURN THIS AGREEMENT SIGNED BY CONTRACTOR AND ESCROW AGENT TO: PHYSICAL  
PLANNING DESIGN AND CONSTRUCTION, UNIVERSITY OF CALIFORNIA, MERCED, 5200 N.  
LAKE RD, MERCED CA 95343.

Escrow Account No.: \_\_\_\_\_

**ESCROW AGREEMENT FOR  
DEPOSIT OF SECURITIES IN LIEU OF RETENTION  
AND  
DEPOSIT OF RETENTION**

This Escrow Agreement is made as of \_\_\_\_\_, \_\_\_\_\_, and entered into by and between  
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, whose address is University of California,  
Office of the President, 1111 Franklin Street, 6th Floor, Oakland, CA 94607-5200, hereinafter called  
"University," and

\_\_\_\_\_ ,  
whose address is \_\_\_\_\_ ,

hereinafter called "Contractor," and \_\_\_\_\_ ,

a state or federally chartered bank in the state of California, whose address is:

\_\_\_\_\_ ,  
hereinafter called "Escrow Agent."

For consideration hereinafter set forth, University, Contractor, and Escrow Agent agree as follows:

(1) Contractor has the option to deposit securities with Escrow Agent as a substitute for retention required to be withheld by University pursuant to the Contract Documents, hereinafter referred to as "Contract," entered into between University and Contractor for the Project titled **Kolligian Library 3W Renovation, Project No. 908074** in the amount of \$ \_\_\_\_\_, dated \_\_\_\_\_. Alternatively, on written request of Contractor, University shall deposit retention directly with Escrow Agent. When Contractor deposits the securities as a substitute for retention, Escrow Agent shall notify University within 5 days after the deposit. At all times, Contractor shall have on deposit securities the market value of which is at least equal to the cash amount then required to be withheld as retention under the terms of the Contract. Securities shall be held in the name of The Regents of the University of California, Merced Campus (Facility); and Contractor shall be designated as the beneficial owner.

(2) Escrow Agent shall review the market value of securities deposited in escrow under this Escrow Agreement as often as conditions of the securities market warrant, but in no case less than once per month. Escrow Agent shall promptly notify University and Contractor of the market value of the deposited securities if such market value is less than the total amount of retention required to be withheld under the terms of the Contract. Contractor shall promptly deposit additional securities so that the current market value of the total of all deposited securities shall be at least equal to the total required amount of retention. Escrow Agent shall, within 5 days after University's request, provide a statement to University of the current market value of all securities deposited under this Escrow Agreement as of a date not earlier than 5 days prior to such request. The provisions of this Paragraph 2 shall not apply to securities consisting of monetary deposits as allowed by Paragraph 7 held by a bank as Escrow Agent, provided the bank provides monthly statements reflecting the status of the monetary deposits held by the bank to University and Contractor.

(3) Contractor shall not use any or all of the securities deposited in lieu of retention under this Escrow Agreement for any other obligations, including deposits in lieu of retention for other contracts. Contractor represents, covenants and warrants that all deposited securities shall be lien free when tendered to the Escrow Agents and shall remain lien free during their retention by the Escrow Agent.

(4) University shall make progress payments to Contractor for those funds which otherwise would

be withheld from progress payments pursuant to the Contract provision, provided that Escrow Agent holds securities in the form and amount specified herein.

(5) Prior to Contractor's submission of each Application For Payment, Escrow Agent shall issue a current statement of (a) the value of the securities currently being deposited in lieu of retention and (b) the current value of all securities being held in escrow pursuant to this Escrow Agreement. Such statement shall be no more than 5 days old at the time of submission, shall be notarized or have a guarantee of signature, and shall be submitted to Contractor with a copy to University under separate cover. Contractor shall attach such original statement to each Application For Payment. The provisions of this Paragraph 5 shall not apply to securities consisting of monetary deposits as allowed by Paragraph 7 held by a bank as Escrow Agent, provided the bank provides monthly statements reflecting the status of the monetary deposits held by the bank to University and Contractor.

(6) If, at the request of Contractor, University deposits retention directly with Escrow Agent, Escrow Agent shall hold such retention for the benefit of Contractor until such time as the escrow created under the Contract is terminated. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when University deposits retention directly with Escrow Agent.

(7) University will allow Contractor to deposit the following securities in lieu of retention and direct the investment of the retention deposits into any of the following which at the time of payment are legal investments under the laws of the State of California:

- a. Direct obligations of the United States of America (including obligations issued or held in book-entry form on the books of the Department of the Treasury of the United States of America or any Federal Reserve Bank), or obligations the timely payment of the principal of and interest on which are fully guaranteed by the United States of America, or tax-exempt obligations which are rated in the highest rating category of a nationally recognized bond rating agency.
- b. Obligations, debentures, notes or other evidence of indebtedness issued or guaranteed by any of the following: Banks for Cooperatives, Federal Intermediate Credit Banks, Federal Home Loan Bank System, Export-Import Bank of the United States, Federal Financing Bank, Federal Land Banks, Federal Farm Credits, Government National Mortgage Association, Farmer's Home Administration, Federal Home Loan Mortgage Corporation, or Federal Housing Administration.
- c. Bonds of the State of California or those for which the faith and credit of the State of California are pledged for the payment of principal and interest.
- d. Interest-bearing bankers acceptances and demand or time deposits (including certificates of deposit) in banks, provided such deposits are either (1) secured at all times, in the manner and to the extent provided by law, by collateral security described in clauses a or b of this Paragraph 7 continuously having a market value at least equal to the amount so invested so long as such underlying obligations or securities are in the possession of the Securities Investors Protection Corporation, (2) in banks having a combined capital and surplus of at least One Hundred Million Dollars, or (3) fully insured by the Federal Deposit Insurance Corporation.
- e. Taxable government money market portfolios restricted to obligations with maturities of one (1) year or less, issued or guaranteed as to payment of principal and interest by the full faith and credit of the United States of America.
- f. Commercial paper rated in the highest rating category of a nationally recognized rating agency, and issued by corporations organized and operating within the United States of America and having total assets in excess of Five Hundred Million Dollars.

(8) Contractor shall be responsible for paying all fees, costs, and expenses incurred by Escrow Agent in administering the escrow account. These expenses and payment terms shall be determined by

Contractor and Escrow Agent. All fees, costs, and expenses of this Escrow Agreement and any transactions carried out hereunder shall be billed by Escrow Agent to Contractor. In the event that any fees, costs, or expenses shall remain unpaid in excess of 30 days from the date due, Escrow Agent may withhold such unpaid amount from any income distributable to Contractor, but shall not withhold such unpaid amount from any income distributable to University.

(9) Interest earned on the securities or the money market accounts held in escrow and all interest earned on the interest shall be for the sole account of Contractor and shall be held in escrow. Interest may be withdrawn by Contractor from time to time, without notice to University, only to the extent that the total amount held in escrow meets or exceeds the required amount of retention.

(10) Except as provided in Paragraph 9, Contractor shall have the right to withdraw all or any part of the escrow account only by written notice to Escrow Agent accompanied by written authorization from University to Escrow Agent stating that University consents to the withdrawal of the amount sought to be withdrawn by Contractor. University shall not be obligated to consent to any withdrawal to the extent of stop notice claims which cannot be satisfied from other funds then due and payable to Contractor.

(11) University shall have the right to draw upon the securities, any interest earned on the securities, and any interest earned on the interest in the event of default by Contractor. Upon 7 days written notice to Escrow Agent from University, with a copy to Contractor, Escrow Agent shall immediately convert the securities, any interest earned on the securities, and all interest earned on the interest to cash and shall distribute the cash as instructed by University. Escrow Agent shall have no duty to determine whether a default has occurred and may rely solely upon the written notice of such default from University.

(12) Upon receipt of written notification from University certifying that final payment is due under the Contract, Escrow Agent shall release to Contractor the amount, if any, by which the value of all securities and interest on deposit less escrow fees and charges of the escrow account exceeds 125% of all stop notice claims on file. Escrow Agent shall pay the remaining amount to University or as directed by University. The escrow shall be closed immediately upon disbursement of all monies and securities on deposit and payment of fees and charges.

(13) Escrow Agent shall rely upon the written notifications from University and Contractor pursuant to this Escrow Agreement; and University and Contractor shall hold Escrow Agent harmless from Escrow Agent's release, conversion, and disbursement of the securities and interest as set forth herein.

(14) Escrow Agent shall have the right to terminate this Escrow Agreement upon 30 days notice to all parties hereunder. Upon receipt of such notice, University and Contractor shall appoint a successor Escrow Agent in writing and deliver written notice of such appointment to Escrow Agent. Thereupon, Escrow Agent shall deliver all assets in its custody to such successor Escrow Agent and all responsibility of Escrow Agent under this Escrow Agreement shall terminate; provided, however, if Contractor and University fail to appoint a successor Escrow Agent on or before the end of the 30 day notice period, then Escrow Agent is authorized and instructed to return all assets, documents, and other items in its custody to University and this Escrow Agreement shall be terminated without further instruction.

(15) The duties and responsibilities of Escrow Agent shall be limited to those expressly set forth in this Escrow Agreement; provided, however, that, with Escrow Agent's written consent, the duties and responsibilities in this Escrow Agreement may be amended at any time or times by an instrument in writing signed by all parties.

(16) Whenever Contractor tenders securities to be deposited in lieu of retention, an authorized representative of the Contractor shall declare under penalty of perjury that the securities are lien free and shall remain lien free during their retention by the Escrow Agent. The declaration shall be in the following form:

“The undersigned, on behalf of \_\_\_\_\_(Name of Contractor) whose address is \_\_\_\_\_ (Street Address, City, State, Zip Code) represents, covenants and warrants that the securities tendered herewith are lien free and shall remain lien free during their retention by the Escrow Agent.

I, \_\_\_\_\_ (Name), hereby declare that I am the \_\_\_\_\_ (Title) of \_\_\_\_\_ (Name of Contractor), that I am duly authorized to make this representation, and that I declare under perjury under the laws of the State of California that the foregoing is true and correct.”

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

(17) The names of the persons authorized to give written notice or to receive written notice on behalf of University and on behalf of Contractor in connection with this Escrow Agreement, and exemplars of their respective signatures, are as set forth below. Such names may be changed by written notice to the other parties.

On behalf of University:

On behalf of Contractor:

1.  
\_\_\_\_\_  
(Name)

1.  
\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Telephone Number)

\_\_\_\_\_  
(Telephone Number)

2.  
\_\_\_\_\_  
(Name)

2.  
\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Telephone Number)

\_\_\_\_\_  
(Telephone Number)

Contractor, Escrow Agent, and University hereby agree to the covenants contained herein.

IN WITNESS WHEREOF, Contractor, Escrow Agent, and University have executed this Escrow Agreement, the day and year first written above.

University:

Contractor:

By

By

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Telephone Number)

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Telephone Number)

By

By

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Telephone Number)

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Telephone Number)

Escrow Agent:

By:

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Telephone Number)

**SUBMITTAL SCHEDULE**  
**(Refer to Section 01 33 23 Shop Drawings, Project Data and Samples)**

PROJECT NAME: KOLLIGIAN LIBRARY 3W RENOVATION  
Project No.: 908074  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA

PROJECT NO: 908074

FACILITY: CONSTRUCTION,  
UNIVERSITY OF CALIFORNIA, MERCED CAMPUS

CONTRACT DATE: \_\_\_\_\_

Contractor  
 /SUBCONTRACTOR: \_\_\_\_\_

SPECIFICATION SECTION: \_\_\_\_\_

WORK ACTIVITY: \_\_\_\_\_

Event	Scheduled Completion Date	Actual Completion Date	Calendar Days Required to Complete
1. Received by Contractor and Time for Checking			
2. First Delivered to University's Representative and Time for Checking			
3. Return to Contractor			
4. Corrections Completed and Time for Corrections			
5. Next Delivered to University's Representative and Time for Checking			
6. Return to Contractor			
7. Approval for Job Information			
8. Approval for Fabrication and Time for Fabrication			
9. Fabrication Completed			
10. Shipping Date and Time en Route			
11. Delivery to Job			

# COST PROPOSAL

Date: \_\_\_\_\_ Change Request No.: \_\_\_\_\_

Project Name: KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA

Project No: 908074

Facility: DESGIN & CONSTRUCTION  
UNIVERSITY OF CALIFORNIA MERCED  
MERCED CALIFORNIA

Contract Date: \_\_\_\_\_

**SCOPE OF CHANGE:**

**INSTRUCTIONS:**

Complete this form by providing (a) all information required above, (b) the amount and justification based upon the Contract Schedule for any proposed adjustment of Contract Time, (c) the proposed adjustment of Contract Sum, (d) the attached "Cost Proposal Summary," and (e) the attached form titled, "Supporting Documentation for the Cost Proposal Summary."

1. Attach the form titled "Supporting Documentation for the Cost Proposal Summary" for Contractor and each Subcontractor involved in the Extra Work. Each such form shall be completed and signed by Contractor or Subcontractor actually performing the Work activity identified on the form. Attach supporting data to each such form to substantiate the individually listed costs. The costs provided on these forms shall be used to substantiate Additional Costs shown on the Cost Proposal Summary.
2. The Contractor Fee shall be computed on the Cost of Extra Work of Contractor and each Subcontractor involved in the Extra Work; and shall constitute full compensation for all costs and expenses related to the subject change and not listed in the "Supporting Documentation for the Cost Proposal Summary," including overhead and profit.
3. Refer to Article 7.3 of the General Conditions for the method of computing the Contractor Fee.

Adjustment of the Contract Time (Include justification based upon the Contract Schedule):

Refer to Article 8 of the General Conditions. \_\_\_\_\_ (Days)

Adjustment of the Contract Sum (Total Additional Cost from Cost Proposal Summary): \$ \_\_\_\_\_

Refer to Article 7 of the General Conditions.

Submitted: \_\_\_\_\_  
(Contractor)

Received: \_\_\_\_\_  
(University's Representative)

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



## COST PROPOSAL SUMMARY

Project Name: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 Facility: University of California, Merced

Change Request No.: \_\_\_\_\_  
 Contractor Name: \_\_\_\_\_

		(1)	(2)	(3)	(4)
		Contractor	1st Tier Subs	2nd & Lower Tier Subs	Total
ACTUAL  COSTS	1. Straight Time Wages/Salaries - Labor				
	2. Fringe Benefits and Payroll Taxes - Labor				
	3. Overtime Wages/Salaries - Labor				
	4. Fringe Benefits and Payroll Taxes - Overtime				
	5. Materials and Consumable Items				
	6. Sales Taxes (On line 5)				
	7. Rental Charges				
	8. Royalties				
	9. Permits				
	10. Actual Costs (Sum of lines 1-9)				
	11. Insurance & Bonds (up to 2% of line 10)				
CONTRACTOR  FEE	12. Sub-Sub (15% of line 10; col. 3)				
	13. Subcontractor (5% of line 10; col. 3)				
	14. Subcontractor (15% of line 10; col. 2)				
	15. Contractor (5% of line 10; col. 2 & 3)				
	16. Contractor (15% of line 10; col. 1)				
	17. Contractor Fee (Sum of lines 12-16)				
	18. Sum of lines 10, 11, & 17				

Actual Costs are taken from line 12 of the attached forms titled, "Supporting Documentation For the Cost Proposal Summary" for Contractor and each Subcontractor involved in the Extra Work.

**SUPPORTING DOCUMENTATION FOR THE COST PROPOSAL SUMMARY**

Contractor/Subcontractor Name: \_\_\_\_\_  
 Work Activity \_\_\_\_\_  
 Facility University of California, Merced

Change Order Request No.: \_\_\_\_\_  
 Project No.: 907265

COST ITEM		COST <sup>(1)</sup>
ACTUAL  COSTS	1. Straight Time Wages/Salaries -- Labor	
	2. Fringe Benefits and Payroll Taxes -- Labor: _____ % of line 1	
	3. Overtime Wages/Salaries - Labor (Attach University Representative's written authorization)	
	4. Fringe Benefits and Payroll Taxes -- Overtime: _____ % of line 3	
	5. Materials and Consumable items	
	6. Sales Taxes: _____ % of line 5	
	7. Rental Charges (attach U.S. Army Corps of Engineers' Schedule)	
	8. Royalties	
	9. Permits	
	10. Total Direct Expense -- sum of lines 1-9	
	11. Insurance and Bonds: _____ % of line 10 (up to 2% of line 10)	
TOTAL	12. Sum of lines 10 and 11	

\_\_\_\_\_  
 (Company Name)

\_\_\_\_\_  
 (Signature) <sup>(2)</sup>

\_\_\_\_\_  
 (Title)

\_\_\_\_\_  
 (Date)

\_\_\_\_\_  
 (Company Name)

\_\_\_\_\_  
 (Signature) <sup>(3)</sup>

\_\_\_\_\_  
 (Title)

\_\_\_\_\_  
 (Date)

- NOTES:
- (1) Round-off all Costs to the nearest dollar.
  - (2) This form shall be prepared and signed by Contractor or Subcontractor actually performing the Work activity indicated above.
  - (3) If this form is signed by a Subcontractor, it shall be reviewed and signed by Contractor certifying the accuracy of the information.

**FIELD ORDER No.: 001**

Project Name: Ranchers Rd. Resurfacing  
Project Number: 900290RR  
To CM/Contractor:  
Address:

DESCRIPTION OF CHANGE:

Date:  
PCO #:

Please provide a Cost Proposal within 7 days of receipt of this Field Order.

In accordance with the General Conditions, Article 7, Paragraph 7.3.6; As a condition to General Contractor's right to an adjustment of the Contract Sum, pursuant to Article 7.3.5.3; General Contractor must keep detailed and accurate records itemizing each element of cost and shall provide substantiating records and documentation, including time cards and invoices. Such records and documentation shall be submitted to and approved University's Representative on a daily basis.

The PTC must follow all procedures set forth and submit per Article 4 of the General Conditions.

Estimated Adjustment  
of Contract Sum: \$0

Estimated Adjustment  
of Contract Time:

By: (Signature)  
(Title)

Date:

Sara Mitchell  
(University Representative)

(Signature)  
Director of Construction Services  
(Title)

Date:

NOTE: This Field Order will be superseded by a Change Order that will include the scope of the change in the Work and any actual adjustments of the Contract Sum and the Contract Time. Field Order shall only be used for Work currently under contract; and shall not be used to modify Option Sum or Option Time.

**CHANGE ORDER**

University of California Facility: Merced Campus

Change Order No. \_\_\_\_\_

Reference Field Order No. \_\_\_\_\_

PROJECT NAME:	KOLLIGIAN LIBRARY 3W RENOVATION		
PROJECT LOCATION:	UNIVERSITY OF CALIFORNIA MERCED, MERCED CALIFORNIA		
PROJECT NO:	908074	CONTRACT DATE:	
TO CONTRACTOR:			
ADDRESS:			

**DESCRIPTION OF CHANGE:**

**ADJUSTMENT OF CONTRACT SUM:**

Original Contract Sum: \$ \_\_\_\_\_  
Prior Adjustments: \$ \_\_\_\_\_  
Contract Sum Prior to this Change: \$ \_\_\_\_\_  
Adjustment for this Change: \$ \_\_\_\_\_  
Revised Contract Sum: \$ \_\_\_\_\_

**ADJUSTMENT OF CONTRACT TIME:**

Original Contract Time: \_\_\_\_\_ (Days)  
Prior Adjustments: \_\_\_\_\_ (Days)  
Contract Time Prior to this Change: \_\_\_\_\_ (Days)  
Adjustment for this Change: \_\_\_\_\_ (Days)  
Revised Contract Time: \_\_\_\_\_ (Days)

Contractor waives any claim for further adjustments of the Contract Sum and the Contract Time related to the above described change in the Work.

**RECOMMENDED:**

By: \_\_\_\_\_  
(Signature of University's Representative)

\_\_\_\_\_  
(Printed Name)

Date: \_\_\_\_\_

**REVIEWED AND RECOMMENDED:**

By: \_\_\_\_\_  
(Signature of University's Designated Administrator)

\_\_\_\_\_  
(Printed Name)

Date: \_\_\_\_\_

**FUNDS SUFFICIENT:**

By: \_\_\_\_\_  
(Signature from University's Accounting Office)

\_\_\_\_\_  
(Printed Name)

Date: \_\_\_\_\_

**APPROVED:**

UNIVERSITY: THE REGENTS OF THE  
UNIVERSITY OF CALIFORNIA

\_\_\_\_\_  
(Printed or Typed Name)

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

Date: \_\_\_\_\_

**ACCEPTED:**

By: \_\_\_\_\_  
(Contractor Signature)

\_\_\_\_\_  
(Printed Contractor Name)

Date: \_\_\_\_\_

**CONDITIONAL WAIVER AND RELEASE  
ON PROGRESS PAYMENT**

Exhibit 10

**NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.**

Identifying Information:

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

**Conditional Waiver and Release**

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: \_\_\_\_\_

Amount of Check: \$ \_\_\_\_\_

Check Payable to: \_\_\_\_\_

**Exceptions**

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: \_\_\_\_\_

Amount(s) of unpaid progress payment(s): \$ \_\_\_\_\_

- (4) Contract rights, including
  - (A) a right based on rescission, abandonment, or breach of contract, and
  - (B) the right to recover compensation for work not compensated by the payment.

Signature:

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_



**CONDITIONAL WAIVER AND RELEASE  
UPON FINAL PAYMENT**

(CA Civil Code § 8136)

**NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.**

Identifying Information:

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: \_\_\_\_\_

Amount of Check: \$ \_\_\_\_\_

Check Payable to: \_\_\_\_\_

Exceptions:

This document does not affect any of the following:

Disputed claims for extras in the amount of \$ \_\_\_\_\_.

Signature:

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

# UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

(CA Civil Code § 8134)

**NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.**

Identifying Information:

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

Through Date: \_\_\_\_\_

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below.

The claimant has received the following progress payment:

\$ \_\_\_\_\_

Exceptions:

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Signature:

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

**UNCONDITIONAL WAIVER AND RELEASE  
UPON FINAL PAYMENT**

(CA Civil Code § 8138)

**NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.**

Identifying Information:

Name of Claimant: \_\_\_\_\_

Name of Customer: \_\_\_\_\_

Job Location: \_\_\_\_\_

Owner: \_\_\_\_\_

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Exceptions:

This document does not affect any of the following:

Disputed claims for extras in the amount of \$ \_\_\_\_\_.

Signature:

Claimant's Signature: \_\_\_\_\_

Claimant's Title: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

EXHIBIT 13A  
 EXHIBIT  
 REPORT OF SUBCONTRACTOR INFORMATION

Sheet No. \_\_\_\_ of \_\_\_\_

Provide the following information for each contracting party including the Contractor and each Subcontractor regardless of tier.\* Attach additional sheets if necessary.

1	2A	2B	3	4	5	6	7		8					
Full Name of Business	Portion of the Work	Dollar Amt	Street Address City, State & ZIP	Tel No / FAX No	Contact Name	Type of Own- ship	License Info**		Business categories* (Check <u>all</u> categories that apply)					
							License Classification**	License No.**	SBE*	DBE*	WBE*	DVBE*	N/A	
(GC)														
(Sub 1)														
(Sub 2)														
(Sub 3)														
						Column 6 – Type of Ownership SP = Sole Proprietorship P = Partnership C = Corporation JV = Joint Venture O = Other			Column 8 - Business Categories SBE = Small Business Enterprise DBE = Disadvantaged Business Enterprise WBE = Woman Business Enterprise DVBE = Disabled Veteran Business Enterprise					

\* Regardless of tier, a completed Self-Certification must be submitted for the General Contractor and each Subcontractor shown on this Exhibit.  
 \*\* List only those License Classification and Numbers relevant to this project.

EXHIBIT 13B  
 EXHIBIT  
**FINAL DISTRIBUTION OF CONTRACT DOLLARS**

Sheet No. 1 of 1

Provide the following information for each contracting party including the Contractor and each Subcontractor regardless of tier.\* Attach additional sheets if necessary.

1	2	3	4	5					6	
Full Name of Business	Street Address, City, State and ZIP	Tel No / FAX No	Contact Name	Business categories					Contract Dollars	
				SBE*	DBE*	WBE*	DVBE*	N/A	Amount (\$)	Percent (%)
(GC)				0	0	0	0	0		0%
(Sub 1)				0	0	0	0	0		0%
(Sub 2)				0	0	0	0	0		0%
(Sub 3)				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
				0	0	0	0	0		0%
Total Contract Amount = { <b>\$1,000.00</b> }			Column 6 - Business Categories					<b>SUBTOTALS</b>		
			SBE = Small Business Enterprise					<b>\$0</b>		
			DBE = Disadvantaged Business Enterprise					<b>\$0</b>		
			WBE = Woman Business Enterprise					<b>\$0</b>		
			DVBE = Disabled Veteran Business Enterprise					<b>\$0</b>		

\*Regardless of tier, a completed Self-Certification must have been submitted for the General Contractor and each Subcontractor shown on this Exhibit.

\*\*Refer to the Report of Subcontractor Information for license and other information.

EXHIBIT 14  
**SELF-CERTIFICATION**

For the Contractor and each Subcontractor indicated on the Report of Subcontractor Information, the following must be completed.

Indicate all Business category(ies) that apply by initialing next to the applicable category(ies):

\_\_\_\_\_  
 (Initial, if applicable) **Small Business Enterprise (SBE)** - an independently owned and operated concern certified, or certifiable, as small business by the Federal Small Business Administration (SBA). (Size standards by Standard Industrial Classification codes required by the Federal Acquisition Regulations, Section 19.102, may be found at [www.sba.gov/size](http://www.sba.gov/size). The University may rely on written representation by the vendors regarding their status.) Annual average receipts, computed from the gross receipts for the last 3 fiscal years, do not exceed the amount listed in the MAXIMUM RECEIPTS TABLE below. The average annual receipt is computed by taking the sum of the gross receipts of the prior 3 fiscal years and dividing by 3.

MAXIMUM RECEIPTS TABLE	
Construction Services (by Contractor's License Classification):	AVERAGE ANNUAL RECEIPTS (Preceding 3 Years)
Class "A" - General Engineering	\$31,000,000
Class "B" - General Building	\$31,000,000
Class "C" - Specialty	\$13,000,000
Architectural & Engineering Services	\$4,500,000 (except landscape architectural services)
Landscape Architectural Services	\$6,500,000
Other services	For appropriate amount, see <a href="http://www.sba.gov/size">www.sba.gov/size</a>

\_\_\_\_\_  
 (Initial, if applicable) **Disadvantaged Business Enterprise (DBE)** - a business concern which is at least 51% owned by one or more socially and economically disadvantaged individuals or, in the case of any publicly owned business, at least 51% of the stock of which is owned by such individuals and whose management and daily business operations are controlled by one or more of such individuals. Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as members of a group without regard to their individual qualities. Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free private enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged. Business owners who certify that they are members of named groups (Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Asian-Indian Americans) are to be considered socially and economically disadvantaged.

\_\_\_\_\_  
 (Initial, if applicable) **Women-Owned Business Enterprise (WBE)** - a business that is at least 51% owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

\_\_\_\_\_  
 (Initial, if applicable) **Disabled Veteran Business Enterprise (DVBE)** - a business that is at least 51% owned by one or more disabled veterans or, in the case of any publicly owned business, at least 51% of the stock of which is owned by such individuals and whose management and daily business operations are controlled by one or more of such individuals. A Disabled Veteran is a veteran of the military, naval, or air service of the United States with a service connected disability who is a resident of the State of California. To qualify as a veteran with a service connected disability, the person must be currently declared by the United States Veterans Administration to be 10% or more disabled as a result of service in the armed forces.

\_\_\_\_\_  
 (Initial, if applicable) **None of the above categories apply.**

I hereby certify under penalty of perjury under the laws of the State of California that I have read this certification and know the contents thereof, and that the business category indicated above reflects the true and correct status of the business in accordance with Federal Small Business Administration criteria and Federal Acquisition Regulations, FAR 19 pertaining to small, disadvantaged, women-owned, and disabled veteran business enterprises. I understand that falsely certifying the status of this business, obstructing, impeding or otherwise inhibiting any University of California official who is attempting to verify the information on this form may result in suspension from participation in University of California business contracts for a period up to five (5) years and the imposition of any civil penalties allowed by law.

INFORMATION FURNISHED BY:

\_\_\_\_\_  
(Print or Type Name of Owner and/or Principal)

\_\_\_\_\_  
(Name of Business or Firm)

a

\_\_\_\_\_  
(Insert type of business e.g. corporation, sole proprietorship, partnership, etc.)

By:

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

#### PRIVACY NOTICE

The State of California Information Practices Act of 1977 (effective July 1, 1978) requires the University of California to provide the following information to individuals who are asked to supply personal information about themselves. Information furnished on the Self-Certification form may, in some cases, identify personal information of an individual.

- The University of California, Merced, is requesting the information contained in this form and the accompanying Report of Subcontractor Information.
- The Small Business Outreach Program Manager at the University of California, Merced, is responsible for maintaining the requested information. The contact information for the Small Business Outreach Program Manager may be found at:  
<http://www.ucop.edu/purchserv/documents/sbdrmgr.pdf>
- The maintenance of information is authorized in part by Public Contract Code section 10500.5.
- Furnishing the information requested on this form is mandatory. If SBE, DBE, WBE and/or DVBE status is applicable, furnishing such information is mandatory.
- Failure to provide the information may be a violation of bidding procedures and/or breach of the contract and the University may pursue any and all remedies permitted by the provisions of the Contract Documents.
- The information on this form is collected for monitoring and reporting purposes in accordance with state law and University policy.
- The individual may access information contained in this form and related forms by contacting the Small Business Outreach Program Manager(s).

**EXHIBIT 15  
CERTIFICATE OF SUBSTANTIAL COMPLETION**

Project Name:  KOLLIGIAN LIBRARY 3W RENOVATION

Contractor: \_\_\_\_\_

Project Number:  908074

Date of Issuance: \_\_\_\_\_

The Work has been reviewed and the date of Substantial Completion is hereby established as of the date of issuance above.

A Certificate of Occupancy has been issued by the University's Building Official \_\_\_\_\_ on \_\_\_\_\_, \_\_\_\_\_.

A list of items to be completed or corrected is included herein. The failure to include any items on such list does not alter the responsibility of Contractor to complete all of the Work in accordance with the Contract Documents.

In accordance with the Contract Documents, Contractor is notified as follows:

1. Without limitation of Contractor's obligation to fully complete the Work within the Contract Time, Contractor shall complete or correct the Work on the list of items attached hereto within \_\_\_\_\_ days from the date of Substantial Completion.
2. Contractor shall be responsible for all Contract requirements except items or responsibilities of University set forth in Paragraph 2 above.
3. List of items to be completed or corrected: See Attached List

**UNIVERSITY'S REPRESENTATIVE:**

\_\_\_\_\_  
(Name of Firm)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed or Printed Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

**UNIVERSITY: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA**

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed or Printed Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

cc: Office of Risk Management

February 1, 2004  
Revision: 0  
LF:EX-CertSC

Exhibit 15  
Certificate of Substantial Completion



**EXHIBIT 16  
GUARANTEE/WARRANTY FORM**

Date: \_\_\_\_\_  
Project Name KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA  
Project Location Merced County, Merced, California  
Project Number 908074  
GUARANTEE FOR: \_\_\_\_\_

(Specification SECTION and Contract No.)  
(the "Contract"), between the Regents of the University of California ("University") and

\_\_\_\_\_  
(Name of Contractor)  
("Contractor") and \_\_\_\_\_  
(Name of Subcontractor)

Hereby guarantee to University that the portion of the work described as follows:  
\_\_\_\_\_  
\_\_\_\_\_

Which it has provided for the above referenced Project, is of good quality; free from defects; free from any liens, claims, and security interests; and has been completed in accordance with Specifications SECTION \_\_\_\_\_ and the other requirements of the Contract.

The undersigned further agrees that, if at any time within \_\_\_\_\_ months after the date of the guarantee the undersigned receives notice from University that the aforesaid portion of the Work is unsatisfactory, faulty, deficient, incomplete, or not in conformance with the requirements of the Contract, the undersigned will, within 10 days after receipt of such notice, correct, repair, or replace such portion of the Work, together with any other parts of the Work and any other property which is damaged or destroyed as a result of such defective portion of the Work or the correction, repair, or replacement thereof; and that it shall diligently and continuously prosecute such correction, repair, or replacement to completion.

In the event the undersigned fails to commence such correction, repair, or replacement within 10 days after such notice, or to diligently and continuously prosecute the same to completion, the undersigned, collectively and separately, do hereby authorize University to undertake such correction, repair, or replacement at the expense of the undersigned; and Contractor will pay to University promptly upon demand all costs and expenses incurred by University in connection therewith.

**SUBCONTRACTOR**

Signed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Typed Name: \_\_\_\_\_  
Name of Firm: \_\_\_\_\_  
Contractor License Classification, Code, and Number: \_\_\_\_\_  
Address: \_\_\_\_\_

**CONTRACTOR**

Signed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Typed Name: \_\_\_\_\_  
Name of Firm \_\_\_\_\_

**Project No.: 908074**

University of California,  
Merced

<b>Request for Information</b>			
RFI Number:	_____		
Date Created:	___ ___/	___ ___/	___ ___
Answer Required by:	___ ___/	___ ___/	___ ___
Priority:	<input type="checkbox"/> Urgent	<input type="checkbox"/> High	
	<input type="checkbox"/> Normal	<input type="checkbox"/> Low	

**Submitted By**

---

Company: \_\_\_\_\_ Subject: \_\_\_\_\_  
Contact: \_\_\_\_\_ Discipline: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Category: \_\_\_\_\_  
Email: \_\_\_\_\_ Reason: \_\_\_\_\_

---

**Question**

---

**Suggestion**

---

**Answer**

---

Received  
By: \_\_\_\_\_ Date: \_\_\_ \_\_\_/ \_\_\_ \_\_\_/ \_\_\_ \_\_\_

EXHIBIT 18

UTILITY SERVICE INTERRUPTION/SHUT DOWN REQUEST

A minimum of 7 working days advance notice  
is required prior to each utility service interruption/shut down  
(Refer to Section 01 35 00 Special Requirements)

SUBMIT DIFFERENT FORM FOR EACH UTILITY

To University's Representative: \_\_\_\_\_

Submitted by Contractor: \_\_\_\_\_

(Printed Name/Title) \_\_\_\_\_

Project No: 907016 \_\_\_\_\_

Project Name: KOLLIGIAN LIBRARY 3W RENOVATION \_\_\_\_\_

Date Request Submitted: \_\_\_\_\_

Shut Down Date Requested: \_\_\_\_\_

Commencing Time of Shut Down: \_\_\_\_\_ A.M. \_\_\_\_\_ P.M.

Duration of Shutdown: \_\_\_\_\_ A.M. \_\_\_\_\_ P.M.

Type of Utility Service to be shut down:

Contractor Signature: \_\_\_\_\_

The above shut down HAS / HAS NOT been scheduled as requested.

EXHIBIT 18  
UTILITY SERVICE INTERRUPTION/SHUT DOWN REQUEST

Additional comments if required:

Confirmed by telephone with \_\_\_\_\_  
Confirmed via fax on \_\_\_\_\_ by \_\_\_\_\_

EXHIBIT 19  
 UNIVERSITY OF CALIFORNIA, MERCED CAMPUS  
 NEW CONSTRUCTION PROJECT INFORMATION FORM  
 TO COMPLY WITH THE TERMS OF THE  
 GENERAL PERMIT TO DISCHARGE STORM WATER  
 ASSOCIATED WITH CONSTRUCTION ACTIVITY (WQ ORDER No. 2009-0009-DWQ)

**I. NOTICE OF INTENT**

UNIVERSITY OF CALIFORNIA, MERCED CAMPUS	WDID#	<b>5F24S319219</b>
---	-------	--------------------

**II. PROPERTY OWNER**

Name	Contact Person		
Mailing Address	Title		
City <b>MERCED</b>	State <b>CA</b>	Zip <b>95343</b>	Phone <b>(209) 228-4404</b>

**III. CONTRACTOR INFORMATION**

Contractor	Contact Person		
Mailing Address	Title		
City	State	Zip	Phone ( ) -

**IV. NEW CONSTRUCTION PROJECT INFORMATION**

Project No			
Project Name	University's Representative		
Physical Address/Location	Latitude	Longitude	County
City (or nearest City) Merced	Zip	Site Phone Number ( ) -	Emergency Phone Number ( ) -
A. Total size of construction site area: ___ Acres	B. Total area to be disturbed: ___ Acres (% of total ___)		
C. Percent of site imperviousness (including rooftops): Before Construction: ___% After Construction: ___%			
D. Tract Number(s): ___,	E. Mile Post Marker:		
F. Is the construction site part of a larger common plan of development or sale? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	G. Name of plan or development:	H. Construction commencement date: _/_/	
I. Percentage of site to be mass graded:	J. Projected construction dates: Complete grading: _/_/ Complete project: _/_/		
K. Type of Construction (Check all that apply):			
1. <input type="checkbox"/> Residential      2. <input type="checkbox"/> Commercial      3. <input type="checkbox"/> Industrial      4. <input type="checkbox"/> Reconstruction      5. <input type="checkbox"/> Transportation 6. <input type="checkbox"/> Utility      Description: 7. <input type="checkbox"/> Other (Please List):			

**V. IMPLEMENTATION OF NPDES PERMIT REQUIREMENTS**

**A. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (check one)**

- A SWPPP has been prepared for this facility and is available for review:  
Date Prepared: \_\_\_/\_\_\_/\_\_\_ Date Amended: \_\_\_/\_\_\_/\_\_\_
- A SWPPP will be prepared and ready for review by (enter date): \_\_\_/\_\_\_/\_\_\_
- A tentative schedule has been included in the SWPPP for activities such as grading, street construction, home construction, etc.

**B. MONITORING PROGRAM**

- A monitoring and maintenance schedule has been developed that includes inspection of the construction BMPs before Anticipated storm events and after actual storm events and is available for review.  
  
If checked above: A qualified person has been assigned responsibility for pre-storm and post-storm BMP inspections to identify effectiveness and necessary repairs or design changes.  YES  NO  
Name: \_\_\_\_\_ Phone: ( ) - \_\_\_\_\_

**C. PERMIT COMPLIANCE RESPONSIBILITY**

A qualified person has been assigned responsibility to ensure full compliance with the Permit, and to implement all elements of the Storm Water Pollution Prevention Plan including:

- 1. Preparing an annual compliance evaluation.  YES  NO  
Name: \_\_\_\_\_ Phone: ( ) - \_\_\_\_\_
- 2. Eliminating all unauthorized discharges.  YES  NO

**VI. VICINITY MAP AND FEE (must show site location in relation to nearest named streets, intersections, etc.)**

Have you included a vicinity map with this submittal?  YES  NO

UC Merced pays annual fee; no fee required by Contractor

**VII. CONTRACTOR CERTIFICATION**

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan will be complied with."

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_

**THE NEXT SECTION TO BE COMPLETED BY UNIVERSITY'S REPRESENTATIVE**

**VIII. UNIVERSITY CERTIFICATION**

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan will be complied with."

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_

**EXHIBIT 20**  
**AUTOMATIC SPRINKLER SYSTEMS**  
**CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING**

Procedure												
Upon completion of work, inspections and tests shall be made by the General Contractor's Representative and witnessed by the University's Representative. All defects shall be corrected and system left in service before General Contractor's personnel finally leave the job.												
A certificate shall be filled out and signed by both representatives. Copies shall be prepared by approving authorities, University and General Contractor. It is understood the University's Representative's signature in no way prejudices any claim against General Contractor for faulty material, more workmanship, or failure to comply with approving authority's requirements or local ordinances.												
Property Name							Date					
Property Address												
Plans												
Accepted by Approving Authorities (Names)												
Address												
Installation conforms to Accepted Plans							Yes	No				
Equipment Used is Approved							Yes	No				
If No, State Deviations												
Instructions												
Has Person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this equipment?							Yes	No				
If No, Explain												
Have copies of the following been left on the premises?												
1. System Components Instructions							Yes	No				
2. Care and Maintenance Instructions							Yes	No				
3. NFPA 25							Yes	No				
Location of System												
Supplies the following Bldg(s):												
Sprinklers												
Make		Model		Year of Manufacturer		Orifice Size		Quantity		Temperature Rating		
Pipe and Fittings												
Pipe conforms to				Standard				Yes	No			
Fittings conform to				Standard				Yes	No			
Alarm Value or Flow Indicator												
Alarm Device					Max Time to Operate through Test Connection							
Type		Make		Model		Min.		Sec.				
Dry Pipe Operating Test												
Dry Valve					QOD							
Make		Model		Serial No.		Make		Model		Serial No.		
Time to Trip Through Test Connection*			Water Pressure		Air Pressure		Trip Point Air Pressure		Time Water reached Test Outlet*		Alarm Operated Properly	
w/o QOD												
w/ QOD												
If No, Explain												
<i>*Measured from time Inspector's test connection is opened.</i>												

Deluge and Preaction Valves	Operation		Pneumatic		Electric		Hydraulic		
	Piping Supervised		Yes	No	Detecting Media Supervised		Yes	No	
	Does valve operate from the Manual Trip and/or Remote Controls Station							Yes	No
	Is there an accessible facility in each circuit for testing							Yes	No
	If, No Explain								
	Make	Model	Does each circuit operate Supervision Loss Alarm		Does each circuit operate Valve Release		Maximum Time to operate Release		
		Yes	No	Yes	No	Min.	Sec.		
Test Description	<b>Hydrostatic:</b> Hydrostatic tests shall be made at not less than 2000 psi (13.6 bars) for 2 hours or 50 psi (3.4 bars) above static pressure in excess of 150 psi (10.2 bars) for 2 hours. Differential dry-pipe valve clappers shall be left open during test to prevent damage. All above ground piping leakage shall be stopped.								
	<b>Flushing:</b> Flow the required rate until water is clear as indicator has no collection of foreign material in burlap bags as outlet such as hydrants and blow-offs. Flush at flows not less than 4000 GPM (1514 l/min) for 4-inch pipe, 600 GPM (1171 L/min) for 5-inch pipe. 2000 GPM (7570 L/min) for 12-inch pipe. When supply cannot produce stipulated flow rates, obtain maximum available.								
	<b>Pneumatic:</b> Establish 40 psi (2.7 bars) air pressure and measure dry, which shall not exceed 1-1/2 psi (0.1 bars) in 24 hours. Test pressure tanks at normal water level and air pressure and measure air pressure drop, which shall not exceed 1-1/2 psi (0.1 bars) in 24 hours.								
Tests	All Piping hydrostatically tested at ___ PSI for ___ Hours			If No, State Reason					
	Dry Piping Pneumatically Tested		Yes	No					
	Equipment Operates Properly		Yes	No					
	Do you certify as the Sprinkler General Contractor that additives and corrosive chemicals, Sodium Silicate or derivatives of Sodium Silicate, Brine or other corrosive chemicals were not used for testing systems or stopping leaks? <input type="checkbox"/> Yes <input type="checkbox"/> No								
	Drain Test	Reading of Gage located near Water Supply Test Pipe: _____ PSI			Residual Pressure with Valve in Test Pipe open wide: _____ PSI				
	<i>Underground mains and lead in connections to system risers flushed before connection made to sprinkler piping</i>								
	Verified by copy of the U Form No. 85B			Yes	No	Other	Explain		
Flushed by Installer of Underground Sprinkler Piping			Yes	No					
Blank Testing Gaskets	Number Used		Locations			Number Removed			
	Welded Piping		Yes	No	If Yes...				
Do you certify as the sprinkler contract that welding procedures comply with the requirements of at least AWS D10.9 Level AR-3?							<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Do you certify that the welding was performed by welders qualified in compliance with the requirements of at least AWS D10.0, Level AR-3?							<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Do you certify that welding was carried out in compliance with a document quality control procure to insure that all discs are retrieved, that openings in piping are smooth, that slag and other welding residue are removed, and that the internal diameters of piping are not penetrated?							<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Hydraulic Data Nameplate	Nameplate Provided		Yes	No					
	If No, Explain								
Remarks	Date left in service with all Control Valves open:								
Signatures	Name of Sprinkler General Contractor:								
	Test Witnessed By								
	For Property University (Signed)				Title		Date		
	For Sprinkler General Contractor (Signed)				Title		Date		
Additional Explanation and Notes (Note: Add additional pages if required)									





**EXHIBIT 21**  
**AUTOMATIC SPRINKLER SYSTEMS**  
**CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING**

Procedure									
Upon completion of work, inspections and tests shall be made by the General Contractor's Representative and witnessed by the University's Representative. All defects shall be corrected and system left in service before General Contractor's personnel finally leave the job.									
A certificate shall be filled out and signed by both representatives. Copies shall be prepared by approving authorities, University and General Contractor. It is understood the University's Representative's signature in no way prejudices any claim against General Contractor for faulty material, more workmanship, or failure to comply with approving authority's requirements or local ordinances.									
Property Name								Date	
Property Address									
Plans									
Accepted by Approving Authorities (Names)									
Address									
Installation conforms to Accepted Plans								Yes	No
Equipment Used is Approved								Yes	No
If No, State Deviations									
Instructions									
Has Person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this equipment?								Yes	No
If No, Explain									
Have copies of appropriate Instructions and Care and Maintenance Charts been left on premises								Yes	No
If No, Explain									
Location of System									
Supplies the following Bldg(s):									
Underground Pipes and Joints									
Pipe Types and Class						Type Joint			
Pipe conforms to						Standard		Yes	No
Fittings conform to						Standard		Yes	No
If No, Explain									
Joints needing anchorage, clamped, strapped or blocked in accordance with _____ Standard								Yes	No
If No, Explain									
If, No Explain									
Make		Model		Does each circuit operate Supervision Loss Alarm		Does each circuit operate Valve Release		Maximum Time to operate Release	
				Yes No		Yes No		Min. Sec.	
Test Description									
<u>Flushing</u> : Flow the required rate until water is clear as indicator has no collection of foreign material in burlap bags as outlet such as hydrants and blow-offs. Flush at flows not less than 4000 GPM (1514 l/min) for 4-inch pipe, 600 GPM (1171 L/min) for 5-inch pipe. 2000 GPM (7570 L/min) for 12-inch pipe. When supply cannot produce stipulated flow rates, obtain maximum available.									
<u>Hydrostatic</u> : Hydrostatic tests shall be made at not less than 2000 psi (13.6 bars) for 2 hours or 50 psi (3.4 bars) above static pressure in excess of 150 psi (10.2 bars) for 2 hours. Differential dry-pipe valve clappers shall be left open during test to prevent damage. All above ground piping leakage shall be stopped.									
<u>Leakage</u> : COMPLETE									
Flushing Tests									
New Underground Piping flushed according to _____ Standard								Yes	No
By (Company)									
If No, Explain									
How Flushing was Obtained						Through what Type Opening			
Public Water		Tank or Reservoir		Fire Pump		Hydrant Butt		Open Pipe	
Lead-In's flushed according to _____ Standard						Number Removed			
By (Company)									

	If No, Explain			
	How Flushing was Obtained		Through what Type Opening	
	Public Water	Tank or Reservoir	Fire Pump	Hydrant Butt    Open Pipe
Hydrostatic Test	All new Underground Piping hydrostatically tested at _____ PSI for _____ hours			
	Joints Covered		Yes	No
Leakage Test	Total Amount of Leakage measured _____ gals. for _____ hours			
Hydrants	Number Installed	Type and Make	All Operate Satisfactorily	
			Yes	No
Control Valves	Water Control Valves left wide open			Yes    No
	If No, Explain			
	Hose Threads of Fire Department Connections and hydrants interchangeable with those of Fire Department answering alarm		Yes	No
Remarks	Date left in service:			
Signatures	Name of Installer General Contractor:			
	Test Witnessed By			
	For Property University (Signed)		Title	Date
	For Sprinkler General Contractor (Signed)		Title	Date
Additional Explanation and Notes <i>(Note: Add additional pages if required)</i>				

**EXHIBIT 22  
 MATERIAL SUBSTITUTION PROPOSAL**

TO (NAME): \_\_\_\_\_  
 PROJECT: **KOLLIGIAN LIBRARY 3W RENOVATION** PROJECT No.: **908074**

- A. We hereby submit for your consideration the following product instead of the specified item:
1. Section: \_\_\_\_\_
  2. Article Number: \_\_\_\_\_
  3. Specified Item: \_\_\_\_\_
  4. Proposed Substitution (Mfg., Type, Model, etc.): \_\_\_\_\_

- B. Complete all of the following:
1. Does this substitution offer University a cost credit (including costs for changes by other subcontractors)?  
 Yes       No      How much? \$ \_\_\_\_\_

List of Subcontractors, if any that may be affected by the substitution.	
Name	Trade

2. Does this substitution offer earlier delivery or less Contract Time?  
 Yes       No  
 How much and why? \_\_\_\_\_
3. How does this substitution affect any dimensions, layout, or details of other subcontractors as shown on the Drawings?  
 \_\_\_\_\_
4. What are the specific differences between this substitution and the specified item?  
 \_\_\_\_\_

- C. Attach the following as applicable (Check if attached):
- |   |                          |
|---|--------------------------|
| 1. Manufacturer's technical data                                      | <input type="checkbox"/> |
| 2. Laboratory test or performance results                             | <input type="checkbox"/> |
| 3. Drawings & wiring diagrams of the proposed product                 | <input type="checkbox"/> |
| 4. Drawings & description of changes required by other subcontractors | <input type="checkbox"/> |
| 5. Samples  | <input type="checkbox"/> |
| 6. Manufacturer's guarantee & maintenance instructions                | <input type="checkbox"/> |

D. Submitted by Contractor: \_\_\_\_\_

Statement by Contractor that the proposed substitution is in full compliance with the requirements of the Contract Documents and Applicable Code Requirements.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

E. University Review Decision:

For Use Only by University's Representative			
Accepted	Rejected	Revise and Resubmit	See Attached

University's  
Representative  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Exhibit 23 - Submittal Approval Page**

*By Submittal Item*

<b>Preparer Approval</b>	<b>University Approval</b>
<p>Spec Section    Sub Section    Item No.    Rev</p> <p>Description: _____</p> <p>By: _____</p> <p>Date: _____</p>	
<b>University of California, Merced Approval</b>	<b>Design Team Approval</b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Approved</li> <li><input type="checkbox"/> Approved as Noted</li> <li><input type="checkbox"/> Revise &amp; Resubmit</li> <li><input type="checkbox"/> Rejected</li> </ul> <p>Review is general and only for conformance with the design concept of the project and with the information given in the contract documents, and shall not be construed as reliving the Contractor of responsibility for omissions or errors, including performance, details, dimensions, materials, configuration, etc. Review of a separate item does not indicate acceptance of an assembly which the item functions.</p> <p>By: _____</p> <p>Date: _____</p>	

**MATERIAL SUBMITTAL TRANSMITTAL / APPROVAL FORM**

From: \_\_\_\_\_ Date: \_\_\_\_\_

Subcontractor: \_\_\_\_\_

Specification Section: \_\_\_\_\_ Sub-section: \_\_\_\_\_

Product: \_\_\_\_\_

Comply with Specifications: Yes No

Substitution: Yes No If Substitution, Provide Exhibit 22

Reviewed By: \_\_\_\_\_

Submitted to UCM: \_\_\_\_\_

UCM Received: \_\_\_\_ -

Submitted to Design Team/UC Rep. \_\_\_\_

Notes: Submittal copy sent via email to:

Item No.	Specification	Description of Material/Shop Drawing	Date	Status

By completing this form the undersigned General Contractor certifies that the material and shop drawings complies with all drawings and specifications of subject contract and the General Contractor has reviewed submittal procedures specified in division 1. Checking is for general conformance with the design concept only. Reviews are subject to all contract requirements. No contract requirements are waived unless specifically noted. General Contractor is responsible for identifying all proposed material substitutions, dimensions, quantities, techniques of construction and coordination with all other trades

**EXHIBIT 24**  
**WASTE MANAGEMENT PLAN**  
**CONSTRUCTION/MAINTENANCE/ALTERATION AND DEMOLITION PROJECTS**

Project Name: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 Name of Company: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Project Site Location: \_\_\_\_\_

Project Type:       New Construction       Demolition  
                           Maintenance/Alteration

Project Size (in sqft): \_\_\_\_\_

	<b>Pre-Project</b>		<b>Project Updates</b>		
			For Period: _____ to _____		
<b>1</b> <b>Materials</b>	<b>2</b> <b>Estimated Generation</b>		<b>3</b> <b>Recycled/Salvaged/Disposed</b>		<b>4</b> <b>Disposal Location</b>
	Cubic Yard(s)	Metric Ton(s)	Cubic Yard(s)	Metric Ton(s)	
<b>Total</b>					

\*Attach proposed Recycling & Waste Bin Location plan for approval by University Representative.

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

- Column 1: "Material" – Enter materials targeted for recycling and/or salvage and include a category for waste materials requiring disposals
- Column 2: "Estimated Generation" – Enter estimated volumes (cu. yd.) or quantities (metric tons) of recyclable and waste materials generated and state number of salvageable items
- Columns 3: "Recycled/Salvaged/Disposed" – Enter volumes (cu. yd.) or quantities (metric tons) of materials recycled and disposed and state number of items salvaged



- Column 4: “Disposal Location” – Enter end-distribution of recycled, salvaged and disposed materials

**EXHIBIT 25**  
**WASTE MANAGEMENT REPORT**  
**CONSTRUCTION/MAINTENANCE/ALTERATION AND DEMOLITION PROJECTS**

Project Name: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 Name of Company: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Project Site Location: \_\_\_\_\_

Project Type:       New Construction       Demolition  
                           Maintenance/Alteration

Project Size (in sqft): \_\_\_\_\_

<b>Pre-Project</b>	<b>Project Updates</b>		
	For Period: _____ to _____		
<b>1</b> Materials	<b>3</b> Recycled/Salvaged/Disposed		<b>4</b> Disposal Location
	Cubic Yard(s)	Metric Ton(s)	
<b>Total</b>			

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

- Column 1: “Material” – Enter materials targeted for recycling and/or salvage and include a category for waste materials requiring disposals
- Column 2: “Recycled/Salvaged/Disposed” – Enter volumes (cu. yd.) or quantities (metric tons) of materials recycled and disposed and state number of items salvaged
- Column 3: “Disposal Location” – Enter end-distribution of recycled, salvaged and disposed materials



# Letter of Instruction

Detailed, Grouped by Each Number

**KOLLIGIAN LIBRARY 3W RENOVATION**  
5200 N Lake Rd  
Merced CA 95343

**Project # 908074**  
Tel: 209 228-4479 Fax: 209 228-4468

**University of California, Merced**

**Number: 001**

**Date: 5/9/2012**

**To:**

**From:** University of California, Merced  
Sara Mitchel  
5200 North Lake Road  
Merced, CA 95343

Subject	Type	Reason
Student Services Building		

Location	Reference	Not To Exceed Cost
		0

**Description**

The following information is hereby issued as a clarification or interpretation of the Contract Documents. This is a clarification or interpretation only and not intended to change the scope of the Work, the Contract Sum, or the Contract Time.

_____ <b>Signature</b>	_____ <b>Signed Date</b>
---------------------------	-----------------------------

**EXHIBIT 27**

**GENERAL CONTRACTOR CLAIM CERTIFICATION**

Pursuant to Article 4.3.3 of the General Conditions, I certify as follows:

1. The Claim to which this certification is attached is made in good faith.
2. Amounts claimed for costs, expenses and damages incurred by General Contractor are accurate and complete. Supporting data for amounts incurred by General Contractor is accurate and complete. Any such supporting data, including any such new amounts, submitted after the execution of this certification, will be accurate and complete.
3. To the best of my knowledge and belief, amounts claimed, and supporting data submitted by General Contractor on behalf of any and all subcontractors or suppliers, of all tiers, or any person or entity under General Contractor, are accurate and complete. General Contractor will not submit, after the date of execution of this certification, any such supporting data, including any such new amounts that, to the best of my knowledge and belief, is not accurate and complete.
4. The amount requested accurately reflects the adjustment of the Contract Sum for which the General Contractor believes the University is liable.
5. Attached hereto is a certification that has been executed by each Subcontractor claiming not less than 5% of the total monetary amount sought by the claim to which this certification is attached.
6. I am duly authorized to certify the Claim on behalf of the General Contractor.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration was executed at: \_\_\_\_\_(Name of City if within a City, otherwise Name of County), in the State of \_\_\_\_\_(State), on \_\_\_\_\_(Date).

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Name of General Contractor)

**EXHIBIT 28**

**SUBCONTRACTOR CLAIM CERTIFICATION**

Pursuant to Article 4.3.3 of the General Conditions, I certify as follows:

1. The portion of the Claim made on behalf of the Subcontractor to which this certification is attached is made in good faith.
2. Amounts claimed for costs, expenses and damages incurred by the Subcontractor are accurate and complete. Supporting data for amounts incurred by the Subcontractor is accurate and complete. Any such supporting data, including any such new amounts, submitted to Contractor after the execution of this certification, will be accurate and complete.
3. To the best of my knowledge and belief, amounts claimed, and supporting data submitted to Contractor by the Subcontractor on behalf of any and all subcontractors or suppliers to Subcontractor, of all tiers, or any person or entity under Subcontractor, are accurate and complete. Subcontractor will not submit, after the date of execution of this certification, any such supporting data, including any such new amounts that, to the best of my knowledge and belief, is not accurate and complete.
4. The amount requested accurately reflects the amount for which the Subcontractor believes the University is liable to Contractor.
5. I am duly authorized to certify the Claim on behalf of the Subcontractor.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration was executed at: \_\_\_\_\_ (Name of City if within a City, otherwise Name of County), in the State of \_\_\_\_\_ (State), on \_\_\_\_\_ (Date).

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Name of Subcontractor)

**CONTRACTOR / SUBCONTRACTOR DAILY REPORT**

**Contractor**

**/Subcontractor:** \_\_\_\_\_

**Daily Details**

---

Date:        \_\_\_ \_\_\_ / \_\_\_ \_\_\_ / \_\_\_\_\_

Temperature:    A.M.        °F    P.M.        °F

Weather:        \_\_\_\_\_

**Manpower** *(List Quantity)*

---

Project Managers: \_\_\_\_\_ Other: \_\_\_\_\_

Superintendents: \_\_\_\_\_ Other: \_\_\_\_\_

Non-Working

Foremen: \_\_\_\_\_ Other: \_\_\_\_\_

Working Foremen: \_\_\_\_\_ Other: \_\_\_\_\_

Journeyman: \_\_\_\_\_ Other: \_\_\_\_\_

Apprentices: \_\_\_\_\_ Other: \_\_\_\_\_

Laborers: \_\_\_\_\_ Other: \_\_\_\_\_

**Subcontractors on Site:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Work Performed in Each**

**Area:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Equipment  
Rented/Used:**

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---

**Shortages/Discrepancies  
of Delivered Materials:**

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---

**Delays/Problems:**

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---

**Unsafe or Hazardous  
Conditions:**

---

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---

**Questions:**

---

---

**Last Safety Meeting**

Date: \_\_\_/\_\_\_/\_\_\_

Topic: \_\_\_\_\_

**Number of Additional Sheets Attached:** \_\_\_\_\_

**Signed:** \_\_\_\_\_

\_\_\_\_\_

**Printed Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_



# HOT WORK PERMIT

**BEFORE INITIATING HOT WORK, ENSURE PRECAUTIONS ARE IN PLACE!  
MAKE SURE AN APPROPRIATE FIRE EXTINGUISHER IS READILY AVAILABLE!**

This Hot Work Permit is required for any operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch-Applied Roofing, and Cadwelding

### INSTRUCTIONS

1. Verification below is to be completed by a qualified person.
2. The completed original is to be presented to the inspector prior to commencing work.
3. Must also be submitted to C.M. 24 hours before work is started to insure proper notifications are made.

#### HOT WORK BEING DONE BY:

UCM Employee

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_ W.O.# \_\_\_\_\_

Start Time: \_\_\_\_\_

Location / Building / Floor \_\_\_\_\_

Nature of Job / Object \_\_\_\_\_

Name of Person Doing Hot Work \_\_\_\_\_

I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for work.

Signed: \_\_\_\_\_

Permit Expires	Date	Time	
			AM PM

Fire Detection	Disabled	Reactivated
----------------	----------	-------------

Date / Time \_\_\_\_\_

Initial: \_\_\_\_\_

**THIS PERMIT IS GOOD FOR  
ONE DAY ONLY**

Ref: -

Inspection No. -

### REQUIRED PRECAUTIONS CHECKLIST

- Automatic Fire Detection Disabled?
- Available sprinklers, hose streams, and extinguishers are in service/operable?
- Hot work equipment is in good repair?

#### Requirements within 10 m (35 feet) or work:

- Flammable liquids, dust, lint, and oil deposits removed?
- Explosive atmosphere in area eliminated?
- Floors swept clean?
- Combustible floors wet down, covered with damp sand or fire-resistant sheets?
- Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins of metal sheets?
- All wall and floor openings covered?
- Fire-resistant tarpaulins suspended beneath work?

#### Work on walls or ceiling / enclosed equipment:

- Construction is non-combustible and without combustible covering or insulation?
- Combustibles on other side of walls moved away?
- Danger exists by condition of heat into another area?
- Enclosed equipment cleaned of all combustibles?
- Containers purged of flammable liquids/vapors?

#### Fire Watch / Hot Work area monitoring:

- Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks?
- Fire watch is supplied with suitable extinguishers?
- Fire watch is trained in use of this equipment? And is sounding alarm?
- Fire watch may be required for adjoining areas, above and below?
- Monitor hot work area 30 minutes after job is completed.

#### Other precautions taken:

- Confined space entry permit required?
- Area protected with smoke or heat detection?
- Ample ventilation to remove smoke/vapor from work area?
- Lockout / tagout required?

KOLLIGIAN LIBRARY 3W RENOVATION  
Project No.: 908074  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA

EXHIBIT 30 – WELDING/HOT WORK PERMIT

**Requests for  
Inspections and/or Tests**

Initial Inspection No.: \_\_\_\_\_ (CM)

KOLLIGIAN LIBRARY 3W

Project No.: 908074  
Tel: \_\_\_\_\_

University of California – Merced  
Fax: \_\_\_\_\_

Date of Request: \_\_\_\_\_ Person Accompanying Inspector: \_\_\_\_\_

Date of Inspection: \_\_\_\_\_ Cell Phone: \_\_\_\_\_

Installing Company: \_\_\_\_\_ Requested Time: \_\_\_\_\_ Reference # \_\_\_\_\_

**Description System / Discipline**

**Location – Items to Be Inspected**

**Quality Control**

Verified by: \_\_\_\_\_ on \_\_\_\_\_ (date).

**IOR's Observations**

**Items Passed**

**Items Failed**

Signature \_\_\_\_\_

Signed Date \_\_\_\_\_

WHEN RECORDED, MAIL TO:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### NOTICE OF COMPLETION

NOTICE IS HEREBY GIVEN that on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, the Work xxxxxx Project was completed. The name of the owner is THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, hereinafter referred to as "The Regents." The address of The Regents is University of California, Office of the President, 1111 Franklin St. 6th Floor, Oakland, California, 94607-5200. The Regents is the owner in fee simple of the real property commonly known as: {Building name, if any}, {Building number i.e. CAAN}, {Names of streets abutting project, if any, and street address, if any}, {Facility name e.g. campus, laboratory, etc.}, {City in which project is located}, {County in which project is located} and of all improvements and buildings thereon including the above-named Project. The name of the original Contractor is: {Insert name of original Contractor}.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA:

By: \_\_\_\_\_

I, \_\_\_\_\_, say that I am the \_\_\_\_\_ of the Merced of the University of California, and as such, make this verification on behalf of The Regents, a corporation; and that I have read the above Notice of Completion and know the contents thereof and that the facts stated therein are true. I declare under penalty of perjury that the foregoing is true and correct. Executed on \_\_\_\_\_, 20 , at \_\_\_\_\_.

\_\_\_\_\_  
(Signature)

*(Note: See attached optional Notary Acknowledgment)*

KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA

Project No.: 908074

*Note: California Civil Code section 9208 provides that a Notice of Completion in the form required by Civil Code secs. 8100-8118, 8182 "shall be accepted by the recorder for recording and is deemed duly recorded without acknowledgment." Nevertheless, clerks in the county recorder's office may be unused to accepting any document without an acknowledgment, so it may be easier to have the document acknowledged, even though unnecessary.*

STATE OF CALIFORNIA )  
COUNTY OF \_\_\_\_\_ )

On \_\_\_\_\_, before me, \_\_\_\_\_, Notary Public, personally appeared \_\_\_\_\_, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity on behalf of the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

IN WITNESS WHEREOF, my hand and official seal.

\_\_\_\_\_  
Signature

My Commission expires: \_\_\_\_\_

## I. SCOPE & EXPECTATIONS

Fire protection impairment is the shutdown of any fire protection systems including:

- Fire alarm systems
- Automatic sprinklers
- Underground fire mains, including control valves (PIV, OS&Y, etc.)
- Fire hydrants
- Fire pumps
- Fire protection water storage tanks or reservoirs
- Systems supplying fire systems
- Special fire extinguishing systems (e.g. water mist, foam, carbon dioxide, FM200 or dry/wet chemical)

The expectations of the UC Merced fire protection impairment process are to:

- **Provide a safe environment to University students, faculty, staff and visitors**
- **Protect University assets**
- **Minimize the frequency of impairments to the fire protection systems**
- **Minimize the impairment extent/area (e.g. impair a zone, rather than the entire building.)**
- **Minimize the impairment duration**
- **Minimize the potential sources of fire**

All University work crews, or outside contractors, must be knowledgeable and familiar with the impairment protocol before beginning any construction or repairs on University buildings. All construction activities involving the impairment of a fire alarm and/or protection system require the approval of the Campus Fire Marshal. Wherever applicable, the contractor shall follow the UC Merced Fire System Impairment Protocol.

## II. DEFINITIONS

*Fire Watch: a temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department. Impairment Fire Watch entails the entire affected area of the impairment (e.g. entire building, floor). Hot Work Fire Watch entails the immediate area of the hot work area which is defined by “area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work”.*

*Planned Impairment: Occurs when all or part of a fire protection system is shut down for activities such as maintenance, renovation or construction.*

*Emergency Impairment: Occurs when an accident or unforeseen event leads to an unplanned fire system outage. Protection must be shutdown suddenly. Scope may be extensive.*

*Hidden: A fire system outage that exists without the knowledge of those responsible to keep fire protection systems in service. Often found while inspect/testing.*

### III. PLANNED IMPAIRMENT PROTOCOL

To assure that unauthorized persons and/or outside contractors do not cause impairment to a fire protection system, the following impairment process will occur prior to any outage:

#### a. Planning and Preparation process:

Requestors for planned outages to the fire protection system must fill out the UC Merced Facilities Fire System Work Permit ([Attachment 1](#)) and email to UC Merced FM Help Desk ([fmhelp@ucmerced.edu](mailto:fmhelp@ucmerced.edu)) or distribution to the Impairment Coordinator. Approval, coordination and schedule must be received from the Impairment Coordinator before proceeding.

#### **Please Note:**

- Bagging or capping smoke detectors *is not* allowable
- Hot work *is not* permitted when the following conditions exist:
  - In buildings equipped with fire sprinklers, where the entire sprinkler system is impaired
  - When an entire building fire detection system is impaired
- **ALL** hot work is subject to the UC Merced Hot Work permit Procedure ([see attached](#))
- All necessary tools and materials must be on site before the impairment begins.
- 5-business day advanced notification for planned impairments is required. Response time will be within 72-hours of request.

#### Impairment Coordinator responsibilities:

- Notify Zurich at least 24 hours (earlier if impairment date known) prior to a planned impairment and at system restoration. For emergency and hidden impairments, notify Zurich Risk Engineering at the first opportunity.
- Follow up and develop a root cause and preventative actions following an emergency and/or hidden impairment.
- Notify UC Public Safety, Fire Department, EH&S, Campus Fire Marshal, Central Plant and Facility Manager.
- Send Facility Advisory to campus where applicable.
- Schedule and manage coordination meetings to review requests.
- Determine any temporary fire protection requirements.
- Approve or deny the requested outage.

- Coordinate with the Campus Fire Marshal to determine if the fire protections impairment requires Fire Watch.
- Coordinate Fire Watch ([see UCM Fire Watch procedure](#)) which may involve Facilities staff and/or contractors.
- Eliminate potential ignition sources.
- Confirm fire extinguishers or water supply hose is available.
- Coordinate to post notification on entrances to impaired buildings ([Attachment 2](#)) and on the system (notice from Zurich).
- Coordinate with staff/requestor to make building announcements (where applicable).
- Coordinate with staff/requestor to perform the impairment.

**b. Impairment:**

- In all University buildings where impairment of a fire protection system takes place, the Impairment Coordinator shall post signage ([Attachment 2](#)) at all building entrances stating “WARNING: The fire alarm system and/or fire sprinkler system is temporarily out of service. If smoke or fire is noted, immediately call 911.” Posted (Date here).
- The printed impairment notice (from Zurich) is affixed to the valve or system for the duration of the outage. A single and separate tag will be used for each valve or system that is taken out of service. The tag(s) should be labeled (e.g. 1 of 5) for inventory purposes so all valves are opened when work is complete.
- Assessment of EI-LOTO (follow UC Merced protocol).
- Relocate combustibles away from the area.
- Provide a continuous or periodic Fire Watch (as determined by the Campus Fire Marshal).
- In accordance with **NFPA 13, 25 and 72**, perform the impairment work.

**c. Post-Impairment:**

After completing the work, it is important to assure that the fire protection has been properly restored. Eight steps are required to assure the protection has been restored. Each step shall be verified by the Impairment Coordinator or designate:

1. Promptly restore the impaired systems upon completion of work.
2. Verification the impairment is restored.
3. Testing is done as needed to confirm fully operational systems.
4. Main Drain Test required for all sprinkler systems impacted by a closed valve(s).
5. For underground repairs, flush systems including hydrants and pumps as needed to ensure debris is absent.
6. Once work has been completed, all signage shall be removed from entrance doors. In buildings with an announcement system, an announcement shall be made making building occupants aware that the impairment is complete.

7. Notify Zurich, Fire Department, EH&S, Campus Fire Marshal, Fire Life Safety staff and Facility Manager the systems are returned to service.
8. Collect and file all fire system impairment notices, including fire watch log.

#### **IV. EMERGENCY IMPAIRMENT PROTOCOL**

When an Emergency Impairment occurs, the steps in the Planned Impairment protocol should be implemented immediately as well as addressing the following:

##### **a. Additional measures:**

1. Expedite the work
2. Limit impairment duration
3. Investigate the cause
4. Consider preventative actions

#### **V. HIDDEN IMPAIRMENT PROTOCOL**

When a Hidden Impairment occurs, the steps in the Planned Impairment protocol should be implemented immediately as well as addressing the following:

##### **a. Additional measures:**

1. Manage the impairment
2. Investigate the cause
3. Consider preventative actions



**Note to the Requestor:** Complete all portions of this permit before any impairment. Email the completed form to UC Merced FM Help Desk ([fmhelp@ucmerced.edu](mailto:fmhelp@ucmerced.edu)) for distribution to the Impairment Coordinator. Approval, coordination and schedule must be received from the Impairment Coordinator before proceeding.

**REQUESTOR INFORMATION**

Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
 Affiliation: \_\_\_\_\_ Email: \_\_\_\_\_

**TYPE OF IMPAIRMENT**

Maintenance     Testing     Repair     Freeze Up     Renovation/Construction

**SYSTEM SHUT OFF**

Sprinkler     Fire Pump     Public Water Main     Yard Main     Reservoir/Tank     Fire Hydrant  
 Alarm/detection system     Special extinguishing system     Other: \_\_\_\_\_

**LOCATION**

Campus-wide     Building/Location(s): \_\_\_\_\_

<b>SPECIFIC SYSTEMS SHUT OFF OR OUT OF SERVICE</b> (e.g. Science & Engineering Sprinklers 3 <sup>rd</sup> floor)	
---	--

<b>REASON FOR AND DESCRIPTION OF IMPAIRMENT</b> (e.g. planned renovations)	
---	--

<b>TYPE OF OPERATIONS IN AFFECTED AREA</b> (e.g. Lab, normally occupied M-F 9:00am to 8:00pm)	
--	--

**SHUTOFF AND RESTORATION DETAILS**

Time of Requested Shut Off: \_\_\_\_\_  am  pm    Date Requested: \_\_\_\_\_

Estimated Date/Time of Restoration: \_\_\_\_\_

Will activity continue in impacted area until system is restored?     Yes     No



**\*\*WARNING\*\***

The fire alarm system and/or sprinkler system  
is temporarily out of service.

If smoke or fire is noted, immediately call 911

POSTED: \_\_\_\_\_

## FIRE WATCH PROCEDURES

### FIRE PROTECTION SYSTEMS IMPAIRMENTS

*These protocols apply to Fire Watch for fire protection systems impairments only. They do not apply to Fire Watch for Hot Work Permits, which is a separate protocol.*

1. Fire watch personnel shall be trained in the use of a fire extinguisher.
2. The number of required fire watch personnel shall be sufficient for the size of the project to be able to walk the entire fire watch area every 30 minutes as determine by the DCFM.
3. Fire watch personnel shall be dedicated to fire watch and have no other additional duties or responsibilities for the duration of fire watch.
4. Fire watch personnel must be equipped with an appropriate means of communication to report fires or other unsafe conditions to UCM Campus Dispatch (radio, cell phone).
5. Fire watch personnel must physically walk the entire fire watch area continually while fire watch is in progress.
6. All accessible rooms and spaces must be viewed while physically walking the fire watch area, as determined by the DCFM.
7. Fire watch personnel shall immediately report fires, smoke, smell of smoke, activation of automatic extinguishing systems to the UCM Campus Public Safety Dispatch Center by calling 9-1-1 or

communicating via radio transmission. Activate fire alarm pull station as available.

8. Cell phone coverage in the Fire Watch Area must be determined if a cell phone is the means of communication to UCM Dispatch.
9. Fire watch personnel shall complete the fire watch log every 30 minutes logging the time, location, and initials.
10. Fire watch personnel shall turn in the fire watch log to Impairment Coordinator.
11. Fire watch must be conducted whenever the fire alarm system, fire sprinkler system, fire pump, water supply to fire protection systems, or any other fire protection system is impaired, disabled, or shut down, regardless of the time length of impairment (see University Impairment Protocol.)
12. If the water supply to a fire pump is shut off, the fire pump must be shut off and fire watch instituted.
13. If the water supply is inadequate for the design of any fire protection system for any building on campus, fire watch must be immediately implemented in the affected buildings until a sufficient water supply is restored. (Water storage tank supply depleted or diminished below acceptable levels).
14. Power failures extending beyond 24 hours where the fire alarm battery supply may be depleted, fire watch must be conducted until the fire alarm batteries are fully charged and functional.
15. No Hot Work during impairment.



# FIRE WATCH LOG

<b>BUILDING:</b>		<b>INDIVIDUAL RESPONSIBLE TO OVERSEE THE FIREWATCH</b>	
<input type="checkbox"/> Fire Watch for Entire Building <input type="checkbox"/> Fire Watch for Specific Area Specify areas:		Name: _____ Title: _____ Date: _____	
<b>COMMUNICATION MEANS</b>		<b>IMPAIRMENT</b>	
<input type="checkbox"/> Radio <input type="checkbox"/> Cell phone		<input type="checkbox"/> Fire alarm <input type="checkbox"/> Fire sprinkler <input type="checkbox"/> Other: _____	

TIME	LOCATION	INITIALS
0100		
0130		
0200		
0230		
0300		
0330		
0400		
0430		
0500		
0530		
0600		
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0700		
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0900		
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1000		
1030		
1100		
1130		
1200		
1230		

TIME	LOCATION	INITIALS
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# UC Merced

## Hot Work Permit Procedure

### (Short Form)



**Purpose:**

To provide a short procedure that details the general requirements, purposes and forms to use when performing hot work at the UC Merced (UCM) main campus, UCM ancillary locations and any UCM leased facilities.

**Scope:**

This procedure applies to all persons performing “Hot Work” including employees and contractors.

**Definitions:**

*Hot work: any work with equipment that produces a spark or an open flame, or a process that generates excessive heat. If there is a risk of fire, the process is by definition “Hot Work.” Also, it should be noted that any work involving electric or gas welding, cutting, brazing or similar flame producing operations is also considered “Hot Work”*

*Fire Watch: a temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department. Impairment Fire Watch entails the entire affected area of the impairment (e.g. entire building, floor). Hot Work Fire Watch entails the immediate area of the hot work area which is defined by “area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work”.*

**Hazards of hot work are:**

- Fire, property or personal loss;
- Explosion of compressed gases;
- Flammable or combustible vapors, solids, liquids near the area of the hot work;
- Processes involving oxygen and fuel gases or flames on torches;
- Metal splatter and electric shock potential from welding or arc flashes;
- Confined space issues involving any “Hot Work.”

**Procedures for Hot Work Permits are intended to:**

- Establish areas for cutting and welding, and procedures for cutting and welding, in other areas;
- Designate an individual responsible for authorizing cutting and welding operations in areas not specifically designed for such processes;
- Ensure that supervisors and employees are suitably trained in the safe operation of their equipment and the safe use of the process;
- Advise all contractors about flammable materials or hazardous conditions of which they may not be aware.

**Cutting or welding shall not be permitted in:**

- Areas not authorized by Designated Campus Fire Marshal (DCFM);
- Sprinklered buildings when fire protection is impaired;
- The presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside uncleansed or improperly prepared tanks or equipment which have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts within 35 feet of the designated work area.

**Hot Work Procedures:**

Before hot work is initiated, the DCFM or designee shall determine that a source of ignition can be safely used. In locations where flammable vapors may be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition. A source of ignition shall not be introduced into an area until all of the following required actions have been completed:

- Tests for the presence of flammable gases and vapors shall be made when the concentration of flammable gases or vapors may reasonably be expected to exceed 20 percent of the lower explosive limit (LEL). The tests shall confirm that the concentration of flammable gases and vapors does not exceed 20 percent of the LEL;
- Oil accumulations or other combustible materials shall be removed or protected from ignition when present in exposed areas;
- The gauge valves shall be closed and the gauges drained, or the gauge glasses shall be guarded when gauge glasses contain flammable liquids, vapors or gases and are exposed to the spatter of molten metal;
- A source of ignition shall not be used where the concentration of flammable gases or vapors exceeds 20 percent of the LEL;
- Suitable fire extinguishing equipment shall be readily available in the area where hot work is performed;
- That a “trained” fire watch is available and shall remain at the site for at least 60 minutes after the hot work is completed.

**Hot work permit:**

A written and numbered hot work permit (attachment 1) shall be issued by the DCFM or designee, before a source of ignition is used. As part of this hot work permit issuance procedure, the employer shall verify that all of the required actions identified have been completed before a hot work permit is issued. The employer’s supervisor designee shall then complete and sign the Hot Work permit.

The hot work permit shall contain the following information:

- The effective time and date;
- The place of use;
- The hours during which the source of ignition may be used, not to exceed 24 hours;
- The specific location or piece of equipment where the source of ignition will be used;
- The nature of the use;
- The nature of the use of the source of ignition;
- Any special precautions or limitations to be observed before, during or after the use of the source of ignition, including the need for a fire watch.

**UC Merced DCFM shall revoke the permit under the following conditions:**

- When circumstances would make the continued use of the source of ignition hazardous;
- Any time the conditions of its issuance change;
- Inactivity of permitted hot work in excess of two hours unless test(s) determines that the LEL is less than 20%.

**Record Keeping:**

- In addition to providing a copy with the DCFM, the supervisor or person designated by Department will keep the hot work permit for at least six months.





# Permit for welding, cutting, hot work ZURICH

**BEFORE STARTING HOT WORK, REVIEW ALL SAFETY PRECAUTIONS.  
CAN THIS JOB BE AVOIDED OR IS THERE A SAFER WAY?**

This permit is required for any temporary operation involving open flame or producing heat and/or sparks: welding, cutting, brazing, grinding, soldering, or using a torch to thaw piping or heat material. The permit applies to only this job, in the area specified, during the time and date noted.

### Instructions

- Supervisor:
1. Complete precaution and safeguard checklist at night.
  2. Complete the form and retain Part 1.
  3. Issue Part 2 to competent person doing the job.
  4. Verify fire watch.

### Permit information

Hot work done by:

- Employee

Contractor

Permit number \_\_\_\_\_

Location/building/floor \_\_\_\_\_

Work to be done \_\_\_\_\_

Person doing job (print and sign name) \_\_\_\_\_

Supervisor signature \_\_\_\_\_

I have verified that the above location has been inspected and the required precautions and safeguards have been taken. Permission is authorized only for the above work.

Date permit expires \_\_\_\_\_

Time \_\_\_\_\_

Date work completed \_\_\_\_\_

Time \_\_\_\_\_

Welder signature \_\_\_\_\_

### Precaution and safeguard checklist

- Sprinkler protection in service and hose and extinguishers available.
- Hot work equipment in good repair.

### Requirements within 35 feet (11 meters) of work

- Flammable liquids and combustible material removed from area.
- Floors swept and overhead structure clean from dust, lint and debris.
- Fire-resistant covers and metal shields provided as needed.
- All floor and wall openings covered and/or protected.
- Walls/ceilings: remove combustibles away from opposite side or adjacent structures.

### Work on enclosed equipment

- Adequate ventilation provided.
- Thoroughly clean and remove all flammables and combustibles.
- Atmosphere checked with gas detector.
- Purge any flammable vapors.
- Concealed space/lockout permits, if required.

### Fire watch

- Trained and equipped fire watch provided during operations and at least 30 minutes after. (Note: 60 minutes for torch applied roofing.)
- A final check-up of work area and adjacent areas must be conducted every 30 minutes until 4 hours after completion.

### Special instructions

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Final check-up date \_\_\_\_\_

Time \_\_\_\_\_

Fire watcher signature \_\_\_\_\_

\_\_\_\_\_



# WARNING! HOT WORK IN PROGRESS WATCH FOR FIRE!

**In case of an emergency**

Call \_\_\_\_\_

At \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Fire watch

Maintain watch throughout work. Watch must be maintained uninterrupted throughout lunch, breaks and ensuring shifts.

Maintain watch for 30 minutes following the completion of work (60 minutes for torch-applied roofing).

**SECTION 01 11 00  
SUMMARY OF WORK**

**PART 1 - GENERAL**

**1.1 WORK REQUIRED BY CONTRACT DOCUMENTS**

- A. Scope of Work: The project will provide space renovations to offices and support spaces located in the existing Kolligian Library Building 3<sup>rd</sup> Floor West on the UC Merced campus. The design will reconfigure spaces in the Kolligian Library 3<sup>rd</sup> Floor West, providing new administrative spaces. This project will reconfigure selected portions of approximately 15,500 assignable square feet of spaces while the remaining building and spaces are expected to be fully operational.
- B. The Work will include coordination with University furniture vendor, demolition of: existing framed walls, electrical, mechanical, ceiling tile and grid.
- C. New work will include: frame new walls, interior storefront assemblies, doors & hardware, electrical modifications, HVAC and fire sprinkler adjustments, with painting of new wall and touch up, patch in of ceiling grid and replacement of damaged ceiling tile, AV data and cabling and carpet match at removed walls.

**1.2 PROJECT PHASING**

- A. Work Phases: Contractor shall complete all work in a single phase. Substantial Construction Completion shall be no later than October 12, 2018 with final completion no later than November 12, 2018.

**1.3 SCHEDULING**

- A. Contractor is to develop Contract Schedules as described in Section 01 31 45. Contractor will be required to perform its work in accordance with a Detailed Project Schedule approved by the University's Representative to be developed, updated, and maintained by the General Contractor after award of the Contract. General Contractor will be required to provide specified scheduling information necessary for the development, updating, and maintenance of the Detailed Project Schedule such that the schedule meets all occupancy and completion milestones.
- B. If Contractor fails to meet Substantial Completion milestones as described in the summary of work 01 11 10 part Contractor shall be assessed liquidated damages in the amount of \$1,500.00 per day for each calendar day following the specified date of Substantial Completion for that phase where the Work remains incomplete (Saturdays, Sundays, and holidays included).

1.4 FINAL COMPLETION

- A. Final Completion shall be applicable to the entire work as required by Article 4 of the Contract Agreement.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 11 00

**SECTION 01 21 00  
ALLOWANCES**

PART 1 – GENERAL

1.1 ALLOWANCES REQUIREMENTS

- A. Included in the Contract Sum are all Allowances stated below. Items covered by Allowances shall be supplied for such amounts and by such persons or firms as University's Representative may direct.
- B. The following shall apply, unless otherwise provided in the Contract Documents:
  - 1. Allowances shall cover the cost to General Contractor of materials and equipment delivered at the Project site and all required taxes, less applicable trade discounts.
  - 2. General Contractor's costs required for storage on and off the Project site, security, loading and unloading, handling at the Project site, labor, installation costs, overhead, profit, and other expenses contemplated for stated Allowance amounts shall be included in the Contract Sum and not in the Allowances.
  - 3. Unless otherwise provided herein, whenever costs are more than or less than Allowances, the Contract Sum shall be adjusted by Change Order based on (1) the difference between actual costs and the Allowances and (2) changes in General Contractor's costs.
  - 4. At any time during the course of the Contract, the University's Representative may elect to delete any or all allowances via Change Order for full amount listed below.
- C. DESCRIPTION OF ALLOWANCE – NOT USED
- D. PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 21 00

**SECTION 01 22 00  
UNIT PRICES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Unit Price quotations shall be inserted in the appropriate spaces in the Bid Form for each Unit Price item of Work described herein.
- B. Unit Prices stated in the Agreement shall be used to compute adjustments of the Contract Sum for approved Unit Price items of Work. Such adjustments shall be made by Change Order (Exhibit 9).
- C. Unit Prices shall include all labor, materials, tools, and equipment; all other direct and indirect costs necessary to complete the item of Work and to coordinate the Unit Price Work with adjacent Work; and shall include all overhead and profit. General Contractor shall accept compensation computed in accordance with the Unit Prices for work installed in place as full compensation for furnishing such Work.
- D. Compensation will be paid for those items of Work described in below, Unit Prices.

1.2 SPECIFIED WORK

- A. Applicable Sections of the Specifications describe the materials and methods required under the various Unit Price items of Work.

1.3 UNIT PRICES

- A. List of Unit Price Items and Descriptions

1.

Price No.	Description	Estimated Units
1	Patch drywall and paint to match existing in areas not identified on the drawings	5,000 sq/ft
2	Remove and replace carpet tiles to match existing where not identified on the drawings	1,500 sq/ft
3	Remove and replace damaged ceiling tiles not in areas identified on the drawings, to match existing	500 sq/ft

1.4 ADVANCED COORDINATION

- A. Immediately notify University's Representative when conditions require the use of Unit Price items of Work.
- B. The applicability of, measurement methods for, documentation of, and the final adjustment of the Contract Sum for Unit Price items of Work shall be determined by the University's Representative.
- C. After performing Unit Price items of Work as directed by University's Representative, General Contractor shall take necessary measurements in the presence of University's Representative and shall submit calculations of quantities to University's Representative for approval. General Contractor shall notify University's Representative 1 day in advance of taking measurements.
- D. The estimated units are an estimate. The estimated units are not a guarantee of added work. General Contractor shall be compensated per 1.4.C.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 22 00

**SECTION 01 23 00  
ALTERNATES**

PART 1 - GENERAL

1.1 ALTERNATES REQUIREMENTS

- A. This Section identifies each Alternate and describes basic changes to the Work only when that Alternate is made a part of the Work by specific provision in the Agreement.
- B. The Lump Sum Base Bid and Alternates shall include the costs of all supporting elements required, so that the combination of the Lump Sum Base Bid and any Alternates shall be complete. The scope of Work for all Alternates shall be in accordance with applicable Drawings and Specifications.
- C. Except as otherwise specifically provided by University, the Work described in Alternates shall be completed with no increase in Contract Time.
- D. This Section includes only the non-technical descriptions of the Alternates. Refer to the specific Sections of Divisions 2-33 of the Specifications for technical descriptions of the Alternates.
- E. Coordinate related Work and modify surrounding Work as required to properly and completely integrate the Alternates into the Work.
- F. The General Contractor shall quote prices for the Alternates listed below in the space provided therefore on the Bid Form. The General Contractor shall be responsible for determining exact quantities of materials involved with the Alternates. Work for the Alternates shall be in strict accordance with the Specifications and Drawings.

1.2 BIDS REQUIRED

Base Bid: The Base Bid consists of all items indicated and/or specified in the Drawings, Specifications and/or Bid Form. The costs for Additive Alternates will be added to the Base Bid, and the costs for Deductive Alternates will be subtracted from the Base Bid.

1.3 DESCRIPTION OF ALTERNATES

A. Deductive Alternate 1

- 1. Deduct Title 24 Lighting Requirements as shown on

ADDENDUM 1

KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA

Project No.: 908074

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 23 00



**SECTION 01 25 00**  
**PRODUCT OPTIONS AND SUBSTITUTIONS**

PART 1 - GENERAL

- 1.1 GENERAL PROVISIONS REGARDING SPECIFICATION OF PRODUCTS, MATERIAL OR EQUIPMENT BY BRAND OR TRADE NAME.
- A. Products, material or equipment specified by both brand or trade name and model number are approved for use, provided the Contractor complies with all Contract requirements. Specification of a product, material or equipment by brand or trade name and model number is not a representation or warranty that the product, material or equipment can be used without modification, to meet the requirements of the plans and specifications; Contractor shall, at its sole cost, modify such products, material, or equipment so that they comply with all requirements of the plans and specifications.
  - B. The first-named product, material or equipment specified by brand or trade name and model number is the basis for the Project design and the use of any item other than the first-named one may require modifications of that design. If Contractor uses any product, material or equipment other than the first-named one, Contractor shall, at its sole cost:
    - 1. Make all revisions and modifications to the design and construction of the Work necessitated by the use the product, material or equipment.
    - 2. Be responsible for all costs of any changes resulting from the use of the product, material or equipment including without limitation, costs or changes which affect other parts of the Work, the work of Separate Contractors, or any other property or operations of the University.
  - C. When a product, material or equipment specified by brand or trade name is followed by the words "or equal," a substitution may be permitted if the substitution is equal to or superior to the first-named product, material or equipment in quality, utility and appearance and if the substitution complies with all other requirements of the plans and specifications.
  - D. A product, material or equipment specified by brand or trade name followed by the words "or equal, no known equal," signifies that University does not have sufficient knowledge to specify a product, material or equipment, other than the one specified by brand or trade name, that is suitable for use on the Project. The use of the words "no known equal" is not intended to discourage substitution requests in accordance with the requirements specified herein.
  - E. When catalog numbers and specific brands or trade names not followed by the designation "or equal" are used in conjunction with a product, material or equipment required by the specifications, substitutions will not be allowed and the named product, material or equipment must be used.
  - F. Specification of a product, material or equipment by brand or trade name and model number is not a representation or warranty that the product, material or equipment is available; Contractor should confirm, prior to submitting its Bid, the availability of any product, material or equipment specified by brand or trade name and model number.

- G. **COMPLETE AND ACCEPTABLE SUBSTITUTION SUBMITTALS SHALL BE DELIVERED TO THE UNIVERSITY'S REPRESENTATIVE NO LATER THAN 35 DAYS FROM THE NOTICE TO PROCEED. SUBMITTALS MAY BE REQUIRED SOONER THAN 35 DAYS IF THE NOTICE TO PROCEED WAS DELAYED BY THE CONTRACTOR OR IF REQUIRED BY EARLY ACTIVITIES INDICATED ON THE PRELIMINARY MASTER PROJECT SCHEDULE.**

1.2 **SPECIAL REQUIREMENTS FOR PRODUCTS, MATERIAL OR EQUIPMENT, OTHER THAN THE FIRST-NAMED PRODUCT, MATERIAL OR EQUIPMENT, SPECIFIED BY BOTH BRAND OR TRADE NAME AND MODEL NUMBER.**

- A. In addition to complying with all other submittal requirements of the Contract, submit within 5 days after the date of commencement specified in the Notice to Proceed, for review and approval by the University's Representative, Contractor prepared specifications and drawings, including design and engineering calculations, prepared by an appropriate licensed professional, depicting all revisions and modifications to the design and construction of the Work necessitated by the use of the product, material or equipment. If no revisions or modifications are necessary, submit within 5 days after the date of commencement specified in the Notice to Proceed, a written representation that no revisions or modifications to the design or construction of the Work are necessitated by the use of the product, material or equipment. Contractor shall utilize the first-named product, material or equipment if Contractor fails to make the appropriate required submittal pursuant to this paragraph within the 5-day period.

- B. A product, material or equipment, other than the first-named product, material or equipment, specified by both brand or trade name and model number may be used if no revisions or modifications to the design or construction of the Work are necessitated by the use of the product, material or equipment. If such revisions or modifications are necessary, the product, material or equipment may be used only if the revisions or modifications are approved in writing by the University's Representative. Contractor has the burden of demonstrating, through the procedures specified herein, that any such revisions or modifications will not be detrimental to the quality, utility or appearance of the Project or any portion of the Project. The University's Representative may refuse to approve any such proposed revisions or modifications where, in the reasonable opinion of the University's Representative, Contractor has failed to demonstrate, through the procedures specified herein, that the revisions or modifications are not detrimental to the quality, utility or appearance of the Project or any portion of the Project.

1.3 **SPECIAL REQUIREMENTS FOR SUBSTITUTIONS.**

- A. In addition to complying with all other submittal requirements of the Contract, submit written data demonstrating that the proposed substitution is equal to or superior to the first-named product, material or equipment in quality, utility and appearance and otherwise complies with all requirements of the plans and specifications, including:
1. Complete technical data including drawings, performance specifications, samples, and test reports of the article proposed for substitution.
  2. Statement by Contractor that the proposed substitution is in full compliance with the requirements of the Contract Documents and Applicable Code Requirements.

3. List of Subcontractors, if any, that may be affected by the substitution.
  4. Contractor prepared specifications and drawings, including design and engineering calculations, prepared by an appropriately licensed professional, depicting all revisions and modifications to the design and construction of the Work necessitated by the use of the substitution. If no revisions or modifications are necessary, submit a written representation that no revisions or modifications to the design or construction of the Work are necessitated by the use of the product, material or equipment.
- B. At the request of and within the timeframes specified by the University's Representative:
1. Submit samples as deemed necessary by the University's Representative to evaluate the proposed substitution.
  2. Submit proposed substitution to tests deemed necessary by the University's Representative to evaluate the proposed substitution. Such tests shall be made by an independent Testing Laboratory and at the sole expense of Contractor, after review and approval of the test procedures by University's Representative. If re-testing is deemed necessary by the University's Representative to evaluate the proposed substitution, such re-testing shall be made by an independent Testing Laboratory at the sole expense of the General Contractor.
  3. Provide any additional information deemed necessary by the University's Representative to evaluate the proposed substitution.
- C. If University's Representative, in reviewing a proposed substitution, requires revisions or corrections to be made to previously accepted shop drawings and supplemental supporting data to be resubmitted, Contractor shall do so within the time period specified by the University's Representative. A proposed substitution may be rejected if Contractor fails to submit such revisions, corrections, or supplemental supporting data within the specified time period.
- D. Except for products, material or equipment designated in the Bidding Documents for evaluation of substitutions prior to award, requests for substitution, including the data required by Paragraph 1.3.A, must be submitted to the University's Representative not later than 35 days after the date of commencement specified in the Notice to Proceed. No requests for substitutions of products, material or equipment subject to the 35-day deadline shall be considered unless the request and supporting data is submitted on or before the deadline, except those deemed, in University's Representative's sole opinion, to be necessary because (i) previously specified or approved manufactured products, material or equipment are no longer manufactured, (ii) of University initiated change orders, or (iii) it is in the best interest of University to accept such substitution.
- E. If a product, material or equipment is designated in the Bidding Documents for evaluation of substitutions prior to award, then a request for substitution of the product, material or equipment, including the data required by Paragraph 1.3.A, must be submitted by the deadline specified in the Bidding Documents. Because of time constraints, only one submittal will be allowed for each such substitution request. Requests for substitutions of products, material or equipment designated for evaluation prior to award may not be made after the deadline specified in the Bidding Documents, and such requests be shall not be considered unless the request and supporting data is submitted on or before the deadline specified in the Bidding Documents. Notwithstanding the forgoing, the University may

consider, after award of the Contract, requests for substitution of a product, material or equipment designated for evaluation prior to award where, in University's Representative's sole opinion, a substitution is necessary because (i) previously specified or approved manufactured products, material or equipment are no longer manufactured, (ii) of University initiated change orders, or (iii) it is in the best interest of University to accept such substitution.

- F. In reviewing the supporting data submitted for substitutions, University's Representative will use, for purposes of comparison, all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Specifications. If more than 2 submissions of supporting data are required, the cost of reviewing the additional supporting data shall be at Contractor's expense.
- G. Contractor has the burden of demonstrating, through the procedures specified herein, that its proposed substitution is equal to or superior to the first-named product, material or equipment in quality, utility and appearance and complies with all other requirements of the plans and specifications. If revisions or modifications to the design or construction of the work are necessitated by the use of the substitution, Contractor also has the burden of demonstrating, through the procedures specified herein, that the use of the substitution will not be detrimental to the quality, utility or appearance of the Project or any portion of the Project.
- H. The University's Representative may refuse to approve any requested substitution where, in the reasonable opinion of the University's Representative, Contractor has failed to demonstrate, through the procedures specified herein, that the proposed substitution is equal to, or superior to, the first-named product, material or equipment, in quality, utility and appearance and that the proposed substitution complies with all other requirements of the plans and specifications.
- I. University's Representative may reject any substitution not proposed in the manner and within the time limits prescribed herein.
- J. Substitutions are not allowed unless approved in writing by the University's Representative. Any such approval shall not relieve Contractor from the requirements of the Contract Documents.
- K. The 35-day and 5-day submittal periods do not excuse Contractor from completing the Work within the Contract Time or excuse Contractor from paying liquidated damages if Final Completion is delayed.
- L. If revisions or modifications to the design or construction of the Work are necessitated by the use of a substitution, the substitution may be used only if the revisions and modifications are approved in writing by the University's Representative. The University's Representative may refuse to approve any such proposed revisions or modifications where, in the reasonable opinion of the University's Representative, Contractor has failed to demonstrate, through the procedures specified herein, that the revisions or modifications are not detrimental to the quality, utility and appearance of the Project or any portion of the Project.

- M. If a substitution request is finally rejected by the University Representative, Contractor shall furnish and install:
1. the first-named product, material, or equipment; or
  2. a product, material, or equipment, other than the first-named product, material or equipment, specified by both brand or trade name and model number, provided Contractor complies with the submittal requirements (including deadlines) of subsection 1.2 above.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 25 00

**SECTION 01 26 13  
REQUESTS FOR INFORMATION**

PART 1 - GENERAL

1.1 SUMMARY

- A. This section contains the procedures to be followed by the Contractor for submitting requests for clarification or additional information.

1.2 PROCEDURES

A. Notification by the Contractor:

1. Submit all requests for clarification and/or additional information in writing to the University's Representative using the Request for Information (RFI) form (Exhibit 17).
2. RFI's not completely and correctly filled out by the Contractor will not be answered. Impacts to the Project arising from the Contractor's failure to properly submit RFI's are the Contractor's sole responsibility.
3. Number RFI's sequentially. Submit a new RFI for each new question. Follow RFI number with sequential alphabetical suffix as necessary for each resubmission. For example, the first RFI shall be '001.' The second RFI shall be '002.' The first resubmittal of RFI 002 shall be '002A.'

- B. Limit each RFI to one subject and one subject only. RFI's addressing more than one subject will not be answered.

C. Submit RFI's if one of the following conditions occur:

1. Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.
2. Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents.
3. Contractor discovers what appears to be an omission from the Contract Documents that cannot be reasonably inferred from the intent of the Contract Documents.

D. Non Compliant RFI's

1. RFI's will not be recognized or accepted if, in the opinion of the University's Representative, one of the following conditions exist:
  - a. The Contractor submits the RFI as a request for substitution.
  - b. The Contractor submits the RFI as a submittal.
  - c. The Contractor submits the RFI under the pretense of a Contract Documents discrepancy or omission without thorough review of the Documents.
  - d. The Contractor submits the RFI in manner that suggest that specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.
  - e. The Contractor submits an RFI in an untimely manner without proper coordination and scheduling of Work or related trades.

2. If over 10% of the RFI's received from the Contractor are found to fall into these categories, the Contractor will be back charged the cost to the University of the additional effort required to respond to these inappropriate questions. Such back charges may include expenses incurred by the University's Design Professional as determined by the University's Representative. Said back charges will be deducted from the Contract Sum.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.1 Requests for Information

- A. Contractor shall ask for any clarification or request for information immediately upon discovery. Contractor shall submit RFI's in a reasonable time frame so as not to affect the project schedule while allowing the full response time described below. RFI's shall include:
  1. Specification Section or Drawing Number and Detail impacted.
  2. Address impacts to schedule and cost.
  3. Suggest possible solutions to fit field conditions, if appropriate.
- B. Response Time:
  1. The University's Representative, whose decision will be final and conclusive, shall resolve such questions and issue instructions to the Contractor within a reasonable time frame. In most cases, RFI's will receive a response within 14 days. In some cases, this time frame may need to be lengthened for complex issues, or shortened for emergency situations, as mutually agreed in writing between the University's Representative and the Contractor.
  2. Should the Contractor proceed with the Work affected before receipt of a response from the University's Representative, any portion of the Work which is not done in accordance with the University's Representative's interpretations, clarifications, instructions, or decisions is subject to removal or replacement and the General Contractor shall be responsible for all resultant losses.
- C. Failure to Agree: In the event of failure to agree as to the scope of the Contract requirements, the Contractor shall follow procedures set forth in the General Conditions.

END OF SECTION 01 26 13

**SECTION 01 31 00**  
**PROJECT COORDINATION**  
***AS IT APPLIES***

PART 1 - GENERAL

1.1 COORDINATION REQUIREMENTS

- A. Contractor shall coordinate the Work and shall not delegate responsibility for coordination to any Subcontractor.
1. Contractor shall anticipate the interrelationship of all Subcontractors and their relationship with the Work.
  2. CM/ Contractor shall resolve differences or disputes between Subcontractors concerning coordination, interference, or extent of the Work between Sections.
  3. Contractor shall coordinate the Work of Subcontractors so that portions of the Work are performed in a manner that minimizes interference with the progress of the Work.
  4. Contractor shall not obstruct spaces and installations that are required to be clear by Applicable Code Requirements.
  5. Contractor shall not cover any piping, wiring, ducts, or other installations until they have been inspected and approved and required certificates of inspection issued.
  6. Contractor shall remove and replace all Work that does not comply with the Contract Documents. Repair or replace any other Work or property damaged by these operations with no adjustment of Contract Sum.
  7. Contractor shall coordinate all portions of the Work requiring careful coordination in order to fit in space available. Before commencing such portions of the Work, prepare supplementary drawings for review by the University's Representative.
  8. CM/ Contractor shall ensure that anchorage, blocking, joining, and other detailing are provided as required.
- B. Electrical and Mechanical Coordination
1. Routing and Coordination of underground Site Utilities
    - a. Contractor shall schedule and coordinate the Work of all site water, sanitary sewer, storm drain, electrical, telecommunications, hydronic, and other utilities Subcontractors having installation responsibilities within the limits of work, with respect to the sequence of Work and the allocation of space among the trades. The planned sequence of Work in such areas and any proposed departure from it affecting or potentially affecting coordination of the overall installation shall be brought promptly, in writing, to the attention of the University's Representative.
    - b. As soon as practical and in no case starting later than 15 days after the Notice to Proceed, the Contractor and above named Subcontractors, shall participate in a meeting for the preparation of a coordinated 3-D Building Information Model (BIM) of the demonstrating how these all site water, sanitary sewer, storm drain, electrical, telecommunications, hydronic, and other utilities will fit within the limits of work. These utilities will be fully coordinated one with the other as well



as with architectural and structural components of the building. This effort shall be in accordance with the Coordination Process Article of the Instructions to Bidders.

2. Routing and Coordination of overhead Mechanical, Fire Sprinkler, Plumbing and/or Electrical Installations
  - a. Contractor shall schedule and coordinate the Work of all Mechanical, Fire Sprinkler, Plumbing, Electrical, Technology, Structural Steel, Metal Framing and Acoustical Ceiling Subcontractors having installation responsibilities within the ceiling space, with respect to the sequence of Work and the allocation of space among the trades. The planned sequence of Work in such areas and any proposed departure from it affecting or potentially affecting coordination of the overall installation shall be brought promptly, in writing, to the attention of the University's Representative.
  - b. As soon as practical and in no case starting later than 15 days after the Notice to Proceed, the Contractor and above named Subcontractors, with assistance from the Drywall Subcontractor, shall participate in a meeting for the preparation of a coordinated 3-D Building Information Model (BIM) of the overhead mechanical, electrical, technology, fire protection and plumbing utilities demonstrating how these utilities will fit within the designated ceiling and vertical shaft spaces. These utilities will be fully coordinated one with the other as well as with architectural and structural components of the building. The Metal Framing and Drywall Subcontractor will provide input as to location of king studs and other wall and ceiling components which potentially impact placement of utilities. This effort shall be in accordance with the Coordination Process Article of the Instructions to Bidders. The Structural Steel Subcontractor shall provide a 3-D model of their work based on their approved shop drawings.
    - 1) BIM layout models of all equipment, ductwork and piping shall be prepared at not less than a 3/8 scale and in the most current version of 3D CAD or BIM software format compatible with NavisWorks software. A listing of compatible formats can be found at <http://www.navisworks.com/en/support/formats>. The Contractor shall establish standards governing model programs, coordinate system, communication and transfer protocols.
    - 2) The resulting 3D models shall accurately show sequencing, routing, sizes and elevations of all ductwork, piping, equipment, registers, grilles, diffusers and similar features, as well as locations of all valves, dampers, services thermostats and all other items requiring access and maintenance. These models shall also accurately show structural and architectural components, including but not limited to beams, columns, walls, ceilings, doors and their types. Additionally, the Contractor shall model any other major architectural and structural features as shown on their respective drawings or models. The design team's architectural and structural models will be available as supplementary information for coordination. The Contractor shall within 15 days after the Notice To Proceed commence and manage the initial

coordination with mechanical, plumbing, fire protection, security, telephone/data, audio/visual, casework, and electrical Subcontractors who shall then begin participating in regular BIM coordination meetings. The Subcontractors shall create their own models in adherence with the standards established in the initial BIM coordination meeting(s), including modeling accurate 3D routings, valves, access panels, switch panels, clearances, etc., as required. The updated models from all Subcontractors shall be uploaded via means established in the initial BIM coordination meeting on a weekly basis at minimum. The planned sequence of Work in such areas and any proposed departure from it affecting or potentially affecting coordination of the overall installation shall be brought promptly, in writing, to the attention of the University's Representative.

- 3) BIM Coordination Meetings: The Contractor shall then prepare a preliminary composite of all models, incorporating all the information and BIM models provided by the Subcontractors. The composite model will then be reviewed during a series of BIM coordination meetings as directed by the Contractor in coordination with the University's Representative, at which time all trades shall be represented by at least one project manager and one modeler in order to review and resolve any real or apparent inferences or conflicts. The Contractor shall also have an active teleconference at all BIM coordination meetings for inclusion of the design team and University staff. In preparing the composite model, minor changes in duct, pipe or conduit routings that do not affect the intended function may be made as required to avoid conflicts. Items may not be resized, exposed, concealed or relocated without the University's Representative's written approvals. No changes shall be made in any wall or chase locations, soffit or ceiling heights, door swings or locations, window or other openings, or other features affecting the function or esthetic effect of the building. If conflicts or interferences cannot be satisfactorily resolved, the University's Representative shall be notified and their decision obtained. The composite BIM model need not be submitted as a whole, but they shall be submitted, in all cases, in ample time to avoid construction delay. The coordination model may lack complete data in certain instances pending receipt of shop drawings or fabrication models, but sufficient space shall be allotted for those items affected. When the final information is received, such data shall be promptly inserted in the composite model. All changes in the scope of work due to revisions formally issued and approved shall be shown on the composite model. All work on the coordination composite drawings shall be performed by competent modelers and shall be clear and fully usable. The University's Representative shall determine the acceptability of the BIM models.
- 4) Composite BIM Model: After all conflicts, interferences and associated issues are resolved, the Contractor shall then develop a

final composite model showing the agreed upon routing, layout and placement of all ductwork, conveyers, piping, conduit, valves, panels, lighting fixtures and all other major mechanical and electrical installations. In preparing the final composite model, any supplementary drawings shall be created as well to accurately communicate the as-built condition. Particular attention shall be given to the locations, size and clearances of all equipment items, shafts, soffits, ceilings, wall spaces and similar features. These final composite models and drawings shall then be signed off by each of the Subcontractors, indicating their awareness and agreement with the indicated routings, layouts and their interrelationship with the other work and systems of all other Subcontractors. After sign-off, no unauthorized deviations will be permitted and if made without written agreement of the University's Representative, this unauthorized work will be removed and corrected by the Contractor at no additional cost to the University. Furthermore, no extra compensation will be paid or additional time allowed relating to any system or component installed without proper coordination between all the trades involved. If any improperly coordinated work or work installed that is not in accordance with the approved coordinated composite model requires additional work by other trades, the costs of all such additional work shall be borne by the Contractor.

- 5) Final Composite BIM Model and Drawings: After the final composite BIM model and associated drawings have been agreed upon and signed by the Contractor and all Subcontractors, the Contractor shall reproduce copies and distribute the BIM model/drawings for reference purposes to each of the participating Subcontractors and the University's Representative. Other Subcontractors responsible for supplementary composite drawings as previously indicated herein shall provide their information for the Contractor's distribution. The University's Representative, Contractor and each Subcontractor shall retain the record copies of final composite BIM models and drawings as working references. All shop drawings and fabrication models, prior to their submittal to the University and their design consultants, shall be compared with the record composite model/drawings and developed accordingly by the responsible Subcontractor. The Contractor with the participation of Subcontractors shall be responsible for the up-to-date maintenance of their record copies of the composite model and to keep one copy available at the site. Any such revision to the composite model(s), which may become necessary during the progression of work shall be communicated to the Contractor and shall be accurately recorded during construction and in a record model and associated drawings at the completion of work by the Contractor. The University, the Contractor and each Subcontractor shall utilize the composite BIM model and any subsequent revisions in the development of their as-built model and drawings. The Final Composite BIM Model and Drawings

- are to be submitted as part of the Closeout Record Documents.
- c. Should unavoidable conflicts be encountered during the preparation or review of the Shop Drawings, or during construction, they shall be promptly brought to the attention of the University's Representative, in writing, for resolution.
  - d. Where the Drawings are diagrammatic, showing only the general arrangement of the systems, Contractor shall have responsibility for the fitting of materials and equipment to other parts of the equipment and structure, and to make adjustments as necessary or required to resolve space problems, preserve service room, and avoid architectural and structural elements and the Work of other trades. Contractor may be required to identify certain areas to relocate installations within the spaces depicted on the Drawings, e.g., ductwork may be shifted within the space shown to accommodate other systems. Such functional relocations shall not be deemed a change to the requirements of the Contract. In the event a major re-routing of a system appears necessary, Contractor shall prepare and submit for approval, Shop Drawings of the proposed rearrangement.
  - e. Because of the diagrammatic nature and small scale of the Drawings, all necessary offsets, adjustments, and transitions required for the complete installation are not shown. Contractor shall carefully investigate the structural and finish conditions affecting all the Work and shall arrange such Work accordingly, furnishing such fittings, equipment, valves, accessories, etc., as may be required to meet such conditions, at no additional cost to the University.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 31 00

**SECTION 01 31 19  
PROJECT MEETINGS**

*AS NECESSARY*

PART 1 - GENERAL

1.1 CONTRACTOR PRECONSTRUCTION CONFERENCE(S)

- A. Prior to commencement of Work, a preconstruction conference will be conducted by the University's Representative to discuss procedures that are to be followed during performance of the Work.
- B. Location: As designated by University's Representative. For those meetings determined to be at the Contractor Job Office, Contractor shall provide video conferencing for those attendees that are offsite.
  - 1. Video Conferencing is defined as the ability to present documents that will be reviewed during a meeting to offsite attendees such as through WebEx, Lync, or GoTo Meeting. Contractor shall submit to the University what service they intend on utilizing to provide video conferencing no later than fifteen days (15) after Notice to Proceed for Phase 2. Additionally, any requested training on utilization of the video conferencing service shall be provided by Contractor.
- C. Attending shall be:
  - 1. University's Representative.
  - 2. Contractor's Project Manager
  - 3. Contractor's Project Site Superintendent.
  - 4. Subcontractors, as appropriate or as requested by the University's Representative.
  - 5. Others as appropriate or as requested by the University's Representative.

1.2 BILLING MEETINGS

- A. Monthly billing meeting shall be conducted by University's Representative each month prior to submittal of the Application For Payment (Exhibit 4).
- B. Location: As designated by University's Representative.
- C. Attending shall be:
  - 1. University's Representative.
  - 2. University's Inspection Team.
  - 3. Others as appropriate or as requested by the University's Representative.

1.3 OAC (OWNER, ARCHITECT, CONSTRUCTION MANAGER) PROGRESS MEETINGS

- A. Weekly progress meetings will be held to discuss and resolve field problems. The University's Representative shall conduct these meetings.
- B. Location: At University's Representative job trailer and via conference call.
- C. Attending shall be:

1. University's Representative.
2. University's Consultants (optional)
3. University's Design Professional and Design Professional's Consultants as appropriate.
4. Others as appropriate or as requested by the University's Representative.

#### 1.4 PREPATORY MEETINGS AND PRE-INSTALLATION CONFERENCES

- A. The University's Representative will conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction or when required in technical Specification Section.
- B. Attendance will be required of parties directly affecting, or affected by, or involved in the installation and its coordination or integration with other materials and installations that have preceded or will follow the particular item of work or activity under consideration. Parties attending the conference shall be qualified and authorized to act on behalf of entity each represents.
- C. Conference Schedule: Schedule conference to assure a sufficient amount of time prior to the scheduled work or activity under consideration so that any concerns, problems or disagreements can be resolved without delaying the Project. Notify the University's Representative 7 days in advance of meeting date.
- D. The University's Representative will make physical arrangements for conferences, prepare agenda, preside at conferences, record minutes, and distribute copies within two days after conference to the University's Representative, the Project Inspector, conference participants and those affected by the decisions made at the conference. The University's Representative will record in the minute's significant discussions and agreements and disagreements.
- E. Do not proceed with the work or activity if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

#### 1.5 GUARANTEES, BONDS, WARRANTIES AND SERVICE/OPERATION AND MAINTENANCE CONTRACTS/DATA REVIEW MEETING

- A. Eleven months following the date of Substantial Completion, a meeting shall be conducted by the University's Representative for the purpose of reviewing the guarantees, bonds, and service and maintenance contracts for materials and equipment. The Contractor shall take action as appropriate to implement repair or replacement of defective items, and to extend service and maintenance contracts as required.
- B. Attending shall be:
  1. University's Representative.
  2. University's Consultants, as appropriate.
  3. University's Design Professional and Design Professional's Consultants as appropriate.
  4. Contractor superintendent(s) whom will be managing the project from on site.
  5. Subcontractors, as appropriate or as requested by the University's Representative.
  6. Others as appropriate or as requested by the University's Representative.

1.6 LEAN SCHEDULING AND PULL-PLANNING MEETINGS

- A. The University Representative will be utilizing the “Last Planner System” to develop and implement a phased schedule that supplements and supports the Master Schedule included within the bid documents.
1. This will require time commitment from officers and supervisors of Contractor and all Subcontractors.
  2. Contractor will be required to provide their input and commitment to the final schedule.
  3. There will be a workshop held prior to the start of construction where the process will be explained in detail and the Master Project Schedule reviewed. Periodically “pull planning” sessions will be held to refine and expand on the detail in the Master Project Schedule. These sessions will require the contractor’s superintendents and foreman to brainstorm and create detailed activities and resource requirements that support the Master Schedule.
- B. Attending shall be:
1. University’s Representative.
  2. University’s Consultants (optional).
  3. University’s Design Professional and Design Professional’s Consultants as appropriate (optional)
  4. Contractor superintendent(s) whom will be managing the project from on site.
  5. Subcontractors, as appropriate or as requested by the University’s Representative.
  6. Others as appropriate or as requested by the University’s Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 31 19

**SECTION 01 31 42  
CONTRACTOR SCHEDULES**

PART 1 - GENERAL

1. CONTRACTOR SCHEDULE

The Contractor is to utilize the “Last Planner System” to develop and implement a phased schedule that supplements and supports the Preliminary Master Project Schedule as defined in this section. This will require time commitment from officers and supervisors of the Contractor and all Subcontractors. The Contractor and all Subcontractors will be required to provide their input and commitment to the final schedule.

A. Pull Planning Sessions

1. There will be a workshop held prior to the start of construction where the process will be explained in detail and the Contractor’s Preliminary Master Project Schedule reviewed.
2. Periodically “pull planning” sessions will be held to refine and expand on the detail in the Preliminary Master Project Schedule.
3. These sessions will require the Contractor and Subcontractor’s superintendents and foreman to brainstorm and create detailed activities and resource requirements that support the Preliminary Master Project Schedule.
4. After the Contractor and all Subcontractors agree to each other’s input, all parties will commit to this updated schedule.

B. Submit

1. Six week look-ahead schedules will be reviewed and updated each week and will be the basis of a Weekly Work Plan (WWP).
2. The Contractor will be required to submit their WWP on a weekly basis prior to that week.

C. Form

1. The WWP will consist of a production plan in which quantity goals as well as weekly manpower requirements established consistent with meeting the overall project schedule.
2. Prepare the WWP in sufficient detail to demonstrate preliminary planning for the Work and to represent a practical plan to complete the Work within the Contract Time and in accordance with the Preliminary Master Project Schedule.

D. Activities

1. The WWP will consist of a production plan in which quantity goals as well as weekly manpower requirements established consistent with meeting the overall project schedule.
2. Identify all holidays, including University holidays, and non-working days on the WWP.



3. During the Pull Planning Sessions the Contractor and each Subcontractor will identify all Work activities in correct sequence for the completion of the Work. Work activities will include the following:
  - a. Major Contractor-furnished equipment, materials, and building elements, and scheduled activities requiring submittals or University's prior approval.
  - b. System test dates.
  - c. Scheduled overtime Work if required by Contract Documents.
  - d. Dates designated for working spaces, storage areas, access, and other facilities to be provided by University.
  - e. Dates orders and decisions from University on designated items are due.
  - f. Dates for delivery of University-furnished equipment.
  - g. Dates for University-furnished utilities.
  - h. Connection and relocation of existing utilities.
  - i. Connection to or penetrating existing structures.
  - j. Scheduled inspections as required by Codes, or as otherwise specified.
4. During the Pull Planning Sessions the Contractor and each Subcontractor will identify all Work activities that constitute the critical path.
  - a. Critical Work activities are defined as Work activities which, if delayed or extended, will delay the scheduled completion of one or more of the milestones specified in this Section or the scheduled completion of the Work, or both. All other Work activities are defined as non-critical Work activities and are considered to have float.

## 1.2 PRELIMINARY MASTER PROJECT SCHEDULE

- A. The Preliminary Master Project Schedule shall be utilized for monitoring progress of the Work and represent a practical plan to complete the Work within the Contract Time.
- B. The Preliminary Master Project Schedule will identify the following milestone events:
  1. Demo Complete
  2. Aluminum storefront shop drawings approved/procurement
  3. Frame and electrical rough-in – Ready for drywall
  4. Drywall ready for tape and texture
  5. Installation of aluminum storefront/glazing/film
  6. Final inspection
- C. The Preliminary Master Project Schedule will identify all holidays and non- working days.
- D. Updating.
  1. The Preliminary Master Project Schedule and WWP will be monitored and updated each week during the construction phase by the whole project team.

2. Monitoring and evaluation will cover not only future activities; but completed activities will be evaluated from a “lesson learned” perspective in order to improve on future planning activities.
3. Project team members will be held accountable for meeting these goals.
4. No Applications For Payment will be processed nor shall any progress payments become due until updated information is accepted by University’s Representative.

1.3 TIME CONTROL

- A. Set up control procedures so that approved schedules are adhered to. Contractor's responsibility is to properly notify University's Representative of anticipated and actual time delays (refer to General Conditions).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 31 42

**SECTION 01 31 45  
CONTRACT SCHEDULES**

*AS APPLIES*

PART 1 - GENERAL

1.1 PRELIMINARY CONTRACT SCHEDULE

- A. Within the time stated in the Notice of Selection as Apparent Lowest Responsible Bidder, Contractor shall submit a preliminary work plan or schedule of proposed operations to the University's Representative for approval. This schedule shall acknowledge the full contract duration as well as significant known contract constraints. In preparation of the plan or schedule, the Contractor shall make due allowance for and include the following:
1. Preparation of equipment and material submittals for review.
  2. Procurement schedule.
  3. Construction and installation schedule.
  4. Major milestones.
  5. Commissioning
  6. Training
- B. Form
1. Prepare the Preliminary Contract Schedule in sufficient detail to demonstrate preliminary planning for the Work and to represent a practical plan to complete the Work within the Contract Time.

1.2 PROJECT OR CONTRACT SCHEDULE

1. Within 30 working days of receipt of the Notice to Proceed, the Contractor shall submit a detailed project schedule. This Detailed Project Schedule shall incorporate the first 90 calendar days of contract Work as shown in the accepted Preliminary Contract Schedule.
2. Form:
  - a. The Detailed Contract Schedule shall be CPM (Critical Path Method), using PDM (Precedence Diagram Method) method of scheduling, with time scaled diagrams (plots) and tabular charts.
  - b. The Detailed Contract CPM Schedule when approved by the University, shall serve as the contract schedule for the project.
  - c. The Detailed Contract CPM Schedule duration shall conform to the full contract duration; and may include one or more float activities, to show full accounting of the Contract Time.
  - d. Prepare the Detailed Contract Schedule in sufficient detail to demonstrate serious planning for the Work and to represent a practical plan to complete the Work within the Contract Time.
  - e. Identify all holidays, UC Merced finals weeks and non-working days.

- f. Critical Work activities are defined as Work activities that, if delayed or extended, will delay the scheduled completion of 1 or more of the milestones specified in this Section or the scheduled completion of the Work, or both. All other Work activities are defined as non-critical Work activities and are considered to have float.
- g. Float is defined as the time that a non-critical Work activity can be delayed or extended without delaying the scheduled completion of milestones specified in this Section or the scheduled completion of the Work, or both. Neither the General Contractor nor the University shall have an exclusive right to the use of float. The party using float shall document the effect on the updated Contract Schedule.

B. Content:

- 1. The Contract Schedule shall identify all Work activities in correct sequence for the completion of the Work. Work activities shall include the following:
  - a. Major Contractor-furnished equipment, materials, and building elements, and scheduled activities requiring submittals or University's Representative's prior approval.
    - 1) Show dates for the submission, review, and approval of each such submittal. Dates shall be shown for the procurement, fabrication, delivery, and installation of major equipment, materials, and building elements, and for scheduled activities designated by the University.
    - 2) A minimum of 18 days shall be allotted for University's Representative to review each submittal.
- 2. Date mobilization complete.
- 3. System test dates.
- 4. Scheduled overtime Work if required by Contract Documents.
- 5. Dates Contractor requests designated workspaces, storage area, access, and other facilities to be provided by the University.
- 6. Dates Contractor requests orders and decisions from the University on designated items.
- 7. Dates Contractor requests University-furnished equipment.
- 8. Dates Contractor requests University-furnished utilities.
- 9. Dates Contractor requests road closures.
- 10. Mock-up construction and reviews
- 11. Connection and relocation of existing utilities including utility shutdowns.
- 12. Connecting to or penetrating existing structures.
- 13. Scheduled inspections as required by Codes, or as otherwise specified.
- 14. Milestone activities showing the point of substantial completion and final completion for each stage of the work, if designated in the Contract Documents, shall be included in The Preliminary Contract Schedule, Contract Schedule, and updates.

C. Presentation

- 1. Network Logic Diagrams

- a. The Contract Schedule shall include all construction and demolition activities, procurement of equipment components and major off-site fabricated items, through the entire construction phase, including pre-commissioning and job close out. Completion or "Punch List" work shall be included in the Contract Time.
  - b. The Contract Schedule shall include a complete sequence of construction, in adequate detail for the planning and coordination of the Work. Unless approved by the University's Representative, there shall be no activities shown with durations in excess of 10 working days.
  - c. The Contract Schedule shall be depicted in the form of precedence diagramming method (PDM) and shall be segregated or divided into bands of activities to reflect the General Contractor's scheduling areas and/or phasing of all construction and procurement activities.
  - d. The PDM Diagram may be divided into a number of separate pages with suitable notation relating to the interface points from one page to the other. Individual pages shall not exceed 30 by 42 inches.
  - e. Each activity shall be drawn so that the early start and early finish dates (or actual dates) are clearly indicated. The schedule plot also shall show the dates in tabular form.
  - f. Each activity shall reflect at least the following information:
    - 1) Description of the work.
    - 2) Activity duration (in work days).
    - 3) Activity number.
    - 4) Activity relationship and float.
  - g. All activities shall be shown, distinguishing critical
  - h. Critical path activities, non-critical activities and milestone activities.
  - i. For large schedules, a summary page shall be provided indicating the major milestones. The summary page shall include a legend that clearly identifies all symbols used within the CPM PDM Diagram. The summary page shall include an index listing all sheets within each sub-network.
  - j. Graphic schedules shall be accompanied by electronic data files of the network, showing all activities, durations, dependencies and constraints. The files shall be provided USB, or CD-ROM, MS Windows format.
2. Tabular Computer Reports
- a. Accompanying the Construction Schedule, the Contractor shall submit various computer generated tabular reports as further described within this Section.
  - b. As requested by the University's Representative, the Contractor will be required to submit additional Schedule and Cost Reports.
- D. Computer System and Computer Generated Tabular Reports:
1. The computer system selected shall be based on PRIMAVERA/PRIMAVISION®, or equal.
  2. The computer software employed by the University's Representative will be capable of:
    - a. Numeric or Alpha/Numeric activity numbering.
    - b. Activity coding's (to facilitate selecting groups or groupings of activities), with at least a 6-position alpha/numeric code.

- c. Activity description field of at least 48 characters.
  - d. Reporting capabilities that allow sorting of a group or groupings of activities to generate various computer tabular reports and, establishing various planning schedules, as well as bar graphs.
  - e. Identifying any user assigned constraint; e.g., start not earlier than on the printout, adjacent to the activity.
  - f. Activity coding to allow graphic presentation in Gantt or PERT chart format.
3. Computer generated tabular reports:
- a. Construction Schedule tabular reports shall include the activity number, activity description, duration, remaining duration, percent complete, early start date, early finish date, late start date, late finish date, total float, precedence relationships, lead/lag values and shall correlate work days to schedule dates. If the activity is completed or in progress, it shall have actual start or actual finish dates in lieu of the planned dates. The following sorts are required:
    - 1) A Schedule of all activities, sorted by activity number, with the CPM Logic.
    - 2) A Schedule of all activities, sorted by early start date without the CPM Logic.
    - 3) A Schedule of all activities, sorted by total float without the CPM Logic.
    - 4) When requested, a Schedule of all activities showing successors, predecessors and constraints.
  - b. Computer generated bar graphs of all activities. The following sorts are required:
    - 1) Sorted by early start only.
    - 2) Sorted by trade and/or responsibility, by early start.
  - c. Computer generated milestone schedule.
- E. Submission
1. Upon receipt, the University's Representative shall review the, Detailed Contract Schedule; the University's Representative and the Contractor shall meet to jointly review the Schedule.
  2. If the Schedule is found to be acceptable, the schedule will then be approved by the University's Representative as the Baseline Construction Schedule (Contract Schedule).
  3. If the Contractor or the University's Representative determines the Contract Schedule to be in need of revision, within 10 working days thereafter, the Contractor shall revise and resubmit the Schedule to the University's Representative for approval, and, upon acceptance thereof, the Schedule shall be approved as the Baseline Construction Schedule (Contract Schedule).
- F. Distribution:
1. University's Representative, 3 copies.
  2. Contractor's Superintendent.
- G. Updating:

1. Contractor shall update the Contract Schedule reflecting progress as of the end of the month and shall submit to the University's Representative for approval by no later than the tenth day of the following month. The updates shall be made as follows:
  - a. The schedule update shall consist of updated CPM Schedule reports similar to the Baseline Construction Schedule. The CPM Schedule reports shall report progress based upon percent complete of actual time and remaining duration. If the General Contractor is behind schedule, or requests an extension to the Contract time, the Contract Schedule must be updated and submitted for review in support of the request. Contract Schedules must be updated any time that delays or a change in scheduled work occurs.
  - b. The updated Contract Schedule shall reflect an up-to-date status of the contract work as completed, and materials furnished and in permanent place that qualify for payment.
  - c. The updated Contract Schedule shall reflect the true effect of all processed change orders for the progress month. Subject to the provisions stated in the General Conditions, the General Contractor will be granted an extension to the contract time for the cumulative effect any approved change orders have had on the critical path; refer to General Conditions for the prerequisites for entitlement to a time extension.
  - d. The updated Contract Schedule shall include all delays for the progress month. Subject to the provisions stated in the General Conditions, the Contractor will be granted an extension to the contract time for the cumulative effect any excusable delay(s) had on the critical path. No time extension will be granted for a claimed delay, unless the General Contractor can demonstrate to the satisfaction of the University's Representative the claimed delay affected the controlling operation or operations of the project. To receive an extension to the contract time, the following conditions must be met:
    - 1) Written notice has been provided, within 7 days of the delay.
    - 2) The written notice meets the notice requirements as outlined in the General Conditions.
    - 3) The Contractor has met the conditions of the General Conditions, all of which are prerequisites for entitlement of an extension of the contract time. The Contractor may submit, with the written notification or with the updated Construction Schedule, a CPM sub-net sketch that delineates the activities that were affected by the delay and the effect the delay had on the critical path. No time extension will be granted if the Contractor has not met the requirements of the General Conditions, or if the Contractor has not satisfactorily demonstrated that the claimed delay affected the critical path. Accordingly, all delays not incorporated into the updated Construction Schedule shall be deemed denied by the University.
2. At the updating, in addition to the above, the Contractor shall provide short interval schedule reports, which include:
  - a. A bar graph spanning 1 month prior to the datum line to 2 months beyond the datum line.
  - b. A " Four-Week Look Ahead" or predicated status report, covering the work within the next 4 week period, with activities sorted by early start.
3. The Contractor shall provide an Accompanying Narrative Report as needed to explain changes to the schedule, changes to the critical path and shall include a list of critical

activities that require action from the University's Representative. The Accompanying Narrative Report shall include a listing of all delays that affected the critical path and shall clearly explain the impact the claimed delay(s) had on the critical path and shall include an account audit of days lost/gained.

4. Other conditions under which additional schedule updating will be required are as follows:
  - a. When delay in completion of any work items or sequence of work items result in an indicated extension of the project completion.
  - b. When delays in submittals or deliveries or work stoppages known to the General Contractor are encountered that make re-planning or rescheduling of the work necessary.
  - c. When the schedule does not represent the actual prosecution and progress of the work.
5. Subject to all other requirements of the Contract Documents, nothing in these requirements shall be deemed to be a usurpation of the Contractor's authority and responsibility to plan and schedule the Work.
6. Distribute copies as required for initial distribution and monthly distribution.

### 1.3 RECOVERY PLAN

If Contractor is behind schedule by more than ten (10) calendar days for any stage of work, based on the updated Contract Schedule after incorporating all approved time extensions, Contractor shall submit to The University's Representative within five (5) working days of notification of such delay, a "Recovery Plan." The Recovery Plan shall be based on proposed revisions to Contract Schedule for the next sixty (60) calendar day period and shall show how Contractor intends to bring the work back on schedule. The Recovery Plan shall also include a written description of the measures that Contractor intends to take without additional cost to The University to regain schedule compliance. The Recovery Plan activities shall be identified according to their relationship to activities on the accepted schedule.

- A. Should Contractor fail to submit and execute such Recovery Plan, The University shall have the option to require Contractor to employ any or all measures that The University deems fit to regain schedule compliance without additional cost to The University.
- B. The Recovery Plan submitted by Contractor, upon acceptance by The University's Representative, shall be incorporated into the Contract Schedule during the next update.
- C. Contractor will be required to submit a Recovery Plan for each update that indicates that the work progress is more than ten (10) calendar days behind schedule.
- D. Should Contractor dispute the determination of The University's Representative regarding the status on Contract delay, such dispute shall not relieve the Contractor of the responsibility to comply with the requirements of this Section and other related Sections until the dispute is resolved per Article 4 of the General Conditions.



1.4 TIME CONTROL

- A. Set up control procedures so that approved schedules are adhered to. Contractor's responsibility is to properly notify University's Representative of anticipated and actual time delays (refer to General Conditions).
- B. Time extension requests shall be submitted in accordance with the provisions of General Conditions.
- C. The General Contractor's time extension request shall be reviewed and evaluated by the University's Representative. A request for the extension shall be deemed denied if not responded to by University's Representative within 21 days.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 31 45

**SECTION 01 33 23**  
**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Shop Drawings, Product Data, and Samples shall be submitted to the University's Representative only in connection with proposed substitutions or when specifically required by the Specifications. Contractor will, however, be required to certify in writing that materials to be provided will be as specified by individual Specification Sections. The University's Representative will not review any other such submittals. Product Data and Samples for proposed substitutions shall be submitted to University's Representative in accordance with Section 01 25 00 Product Options and Substitutions. Contractor shall be responsible for obtaining copies of Shop Drawings, Product Data, and Samples as it may require for its own use.

1.2 RELATED REQUIREMENTS

A. Definitions

1. The terms "Shop Drawings" and "Product Data" as used herein also include, but are not limited to fabrication, erection, layout and setting drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams as well as all other drawings and descriptive data pertaining to materials, equipment, piping, duct, conduit systems, and methods of construction as required to show that the materials, equipment, or systems and the positions thereof conform to the Contract Documents.
2. As used herein, the term "manufactured" applies to standard units usually mass-produced. The term "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements. Shop Drawings shall establish the actual detail of all manufactured or fabricated items, indicate proper relationship to adjoining Work, and amplify design details of mechanical and electrical equipment in proper relationship to physical spaces in the structure.

B. Manufacturer's Instructions

1. Where any item of Work is required by the Contract Documents to be furnished, installed, or performed in accordance with a specified product manufacturer's instructions, General Contractor shall procure and distribute the necessary copies of such instructions to the University's Representative and the General Contractor shall furnish, install, or perform the Work in strict accordance therewith.

C. Submittal Schedule

1. The minimum time required by University's Representative and University's Design Professional to review and process Shop Drawings, Product Data and Samples shall be 18 days after receipt.
2. The Contractor shall submit a schedule for submission of Shop Drawings, Product Data, and Samples (the "Submittal Schedule"). The schedule shall include the Contractor's time to process the submittal(s), and the time required

for review by the University's Representative and University's Design Professional. The schedule shall be agreed upon by the University's Representative, the University's Design Professional, and the Contractor in order that submittals will be available when needed by the construction process and so that each party can plan its workload in an orderly manner. All required submittals shall be initially submitted no later than 2 months after the Notice to Proceed.

3. Contractor shall prepare the Submittal Schedule in the form contained in the Submittal Schedule (Exhibit 6) and coordinate it with the Contract Schedule. No submittals will be processed prior to University's Representative and University's Design Professional receiving and approving the Submittal Schedule, unless an exception is made by the University's Representative.
4. In preparing the Submittal Schedule, the Contractor must first determine from the Contract Schedule the date the particular item is needed for the Work. Working backwards, the Contractor will add the required number of days for shipment, time for fabrication, and similar items to determine the date of the first submittal. Contractor shall be responsible for the impact to the schedule resulting from submittals that do not conform to contract requirements. Contractor shall make reasonable allowances in the Submittal Schedule for the re-submittal of items that do not conform to contract requirements.
5. The Submittal Schedule shall be adjusted to meet the needs of the construction process and the Contract Schedule. Submit 2 copies of the Submittal Schedule after it is completed and each time it is updated by the Contractor.

### 1.3 SHOP DRAWINGS

- A. Present information required on Shop Drawings in a clear and thorough manner. Identify details by reference to drawing and detail, schedule and/or room numbers shown and specified.
- B. The Contractor shall prepare Shop Drawings that comply with the Requirements of Section 01 78 39 Project As-Built Documents.

### 1.4 PRODUCT DATA

- A. Preparation
  1. Clearly mark each copy to identify pertinent products or models.
  2. Show performance characteristics and capacities.
  3. Show dimensions and clearances required.
  4. Show wiring or piping diagrams and controls.
- B. Manufacturer's standard schematic drawings and diagrams
  1. Modify the standard schematic drawings and other diagrams to delete information that is not applicable to the Work.
  2. Supplement standard information to provide information specifically applicable to the Work.
  3. Clearly indicate manufacturer's model or part number intended for Project.

C. Material Safety Data Sheets

1. Material Safety Data Sheets (MSDS) shall be submitted for all hazardous substances so defined by the State of California. MSDS shall also be provided for all substances furnished under this contract that are not available to the general public from retail outlets; e.g., paints, coatings, lacquers, varnishes, sealers, removers, thinners, solvents, adhesives, cleaners, acids, putty, fillers, disinfectants, fungicides, pesticides, gases, oils, lubricants, treatments, liquid-applied flooring, etc.

1.5 SAMPLES

A. Samples shall be of sufficient size and quality to clearly illustrate the following:

1. Functional characteristics of the products with integrally related parts and attachment devices.
2. Full ranges of color, texture and pattern or as specified by the University's Representative.
3. Or as specified.

B. Field Samples and mock-ups

1. Erect at the Project site, at a location as directed by the University's Representative;
2. Size: As specified;
3. Fabricate each Sample and mock-up to be complete and fully finished;
4. Remove mock-ups at conclusion of the Work;
5. Or as specified.

1.6 LEED™ SUBMITTAL INFORMATION

A. All information noted in Section 01 81 13 LEED® Requirements shall be noted on Exhibit 49, LEED NC v3.0 Product Data Submittal Data Form of every submittal including , but not limited to:

1. Distance in miles from final assembly location to project site;
2. All recycled content information;
3. All FSC certified wood information;
4. All electric, natural gas and water efficiency information;
5. VOC and other LEED® related issues.

B. Any submittals not containing this information on the cover will be rejected.

1.7 CONTRACTOR'S REVIEW OF SUBMITTALS

- A. Review, edit as appropriate, and stamp Shop Drawings, Product Data, and Samples prior to submission. Submittals shall clearly show that they have been reviewed by the Contractor for conformance with the requirements of the Contract Documents and for coordination with other Sections. Contractor's stamp and signature shall indicate that the submittal has been reviewed by the Contractor for conformance with the Contract requirements. Submittals that do not comply with this paragraph shall not be reviewed.

- B. Determine and verify
  - 1. Field measurements.
  - 2. Field construction criteria.
  - 3. Catalog numbers and similar data.
  - 4. Conformance with Contract Documents.
- C. Coordinate each submittal with requirements of the Work and of the Contract Documents.
- D. Notify the University's Representative and University's Design Professional in writing, at time of submission, of any changes in the submittals from requirements of the Contract Documents.
- E. Do not proceed with fabrication or Work that requires submittal review approval.

## 1.8 SUBMITTAL REQUIREMENTS

- A. The Contractor shall:
  - 1. Submit items in a group or in a sequence which provide the University's Representative with sufficient information to review items of Work which require coordination with each other. Submissions that do not provide sufficient information to review items of Work requiring coordination with each other shall be returned to the Contractor for re-submittal.
  - 2. Submit submittals promptly in timely manner to avoid delay in the Work or in the Work of any Separate Contractor.
  - 3. Submit a completed Exhibit 23 Material Submittal Approval Form with every submittal.
  - 4. Submit new samples as required for initial submittal.
- B. Number of Submittals Required
  - 1. Shop Drawings: Submit 9 blue line reproductions and an electronic file of shop drawings to the University's Representative. The University's Representative shall return 1 blue line reproduction or an electronic copy with review comments to the Contractor. Verify Quantity Required.
  - 2. Project Data and Non-Reproducible Submittals: Submit 9 copies to the University's Representative. The University's Design Professional shall return 1 copy with review comments to the Contractor.
  - 3. Samples and Non-Reproducible Submittals: Submit number as specified in individual Specification Section(s) to University's Representative.
  - 4. University may require submittals to be submitted electronically in the format of AUTOCAD® (latest version available at date of Bid). Files must be ORIGINAL.DWG format. Electronic media must be CD-ROM. One set of original plots must be provided with the electronic media.
    - a. Drawings are to use a specified title block, orientation and north arrow provided by the University.
    - b. All actual Drawings are to be done on Model space and plot set up/title block are on Paper space.
    - c. Shop Drawing size should be 30"x42" unless is requested differently by the University's Representative.
    - d. All Cross references within the same AUTOCAD® Drawing must be bound.

C. Submittals shall contain:

1. A unique number. Follow Submittal Number with incremental alphabetical suffix as necessary for each resubmission. For example, the first submittal will be '001'. The second submittal will be '002'. The first resubmittal of submittal 002 will be '002A.'
2. Actual date of submission, date of submission as shown on Submittal Schedule, date response due, and dates of any previous submissions.
3. Project name and number.
4. Contract identification.
5. The names of:
  - a. Contractor.
  - b. Subcontractor.
  - c. Supplier.
  - d. Manufacturer.
  - e. Bid Package Number if applicable.
6. Identification of the product with the Specification Section number.
7. Field dimensions clearly identified as such.
8. Relation to adjacent or critical features of the Work or materials including interaction with work of other trades.
9. Reference standards such as American Society for Testing and Materials (ASTM) or Federal Specification (FS) numbers.
10. Identification of changes from requirements of the Contract Documents.
11. Identification of revisions on re-submittals. Note any departures from the Contract Documents or changes in previously reviewed submittals that were not commented upon by the University's Representative.
12. An 8 by 3 inch blank space for review stamps.
13. Contractor's stamp, initialed or signed, certifying to the review of the submittal; verification of materials field measurements and conditions; and compliance of the information within the submittal with requirements of the Work and of the Contract Documents.
14. Contractor shall submit submittal(s) with transmittal provided by the University's Representative.

D. Resubmission Requirements

1. Shop Drawings and Product Data
  - a. Note any departures from the Contract Documents or changes in previously reviewed submittals that were not commented upon by the University's Representative.
  - b. University's Representative and the University's Design Professional will review a total of 2 submittals for the same item at no cost to the Contractor. The cost for the review of more than 2 submittals of the same item shall be deducted from the Contract Sum.
2. Samples: Submit samples as required for review/approval.

E. Distribution

1. Reproduce and distribute copies of Shop Drawings and Product Data that carry the University's Representative's review stamp, to the following locations:
  - a. Contractor's Project site file.
  - b. Record documents file maintained by the Contractor.
  - c. Separate General Contractors.

- d. Subcontractors.
  - e. Supplier, manufacturer or fabricator.
  - 2. Distribute Samples that carry the University's Representative's review stamp as directed.
  - 3. Provide electronic copies of Shop Drawings and Product Data that have the final approved review stamp to the University's Representative for file.
- F. University's Representative and the University's Design Professional will review Contractor's submittals, such as Shop Drawings, Product Data and Samples, for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 33 23

**SECTION 01 35 00  
SPECIAL REQUIREMENTS**

PART 1 - GENERAL

1.1 DEFINITION OF PROJECT SITE

- A. Contractor's use of the Project site for the Work and storage is restricted to the areas designated on the Drawings.
- B. The Project site is located at University of California, Merced Campus, 5200 N. Lake Rd. Merced CA 95344, Kolligian Library.

1.2 WORK HOURS

- A. No Work shall be done outside of standard Monday through Friday 7:00 A.M. to 5:00 P.M. working hours, on holidays or weekends unless prior written approval has been obtained from the University's Representative.

1.3 SITE INGRESS AND EGRESS

- A. Contractor shall use the Project Access Road off of Lake Road at Ranchers Road as shown on the Site Logistics Plan.
- B. Contractor shall construct and maintain temporary access roads and laydown areas as shown on the Site Logistics Plan. All temporary access roads shall comply with all applicable laws, regulations & permit requirements.

1.4 SITE RESTRICTIONS

- A. **OUT OF BOUNDS AREAS:** Areas outside the project limits as identified on the Topographic Survey in the Contract Documents.
  - 1. Little Lake
    - a. The Contractor shall not permit any personnel or construction vehicle to approach within 100 feet of Little Lake except with the prior written approval of the University's Representative.
    - b. The Contractor shall ensure that no personnel shall use the Lake to fish, swim or for other non-construction activities.
    - c. The Contractor shall ensure that no run-off shall enter the Lake except as indicated on the Drawings.
    - d. The Contractor shall ensure that no construction garbage, detritus, waste or debris (whether solid or liquid) of any type shall enter the Lake.
  - 2. Merced Irrigation District<sup>2</sup>
    - a. The Contractor shall not permit any personnel or construction vehicle to approach within 50 feet of the Fairfield Canal and the penstock between Le Grand and Fairfield Canals except with the prior written approval of the University's Representative.



- b. The Contractor shall ensure that no personnel shall use the Fairfield Canal or the penstock between Le Grand and Fairfield Canals to fish, swim or for other non-construction activities.
- c. The Contractor shall ensure that no run-off shall enter the Fairfield Canal or the penstock between Le Grand and Fairfield Canals except as indicated in the Contract documents.
- d. The Contractor shall ensure that no construction garbage, detritus, waste or debris (whether solid or liquid) of any type shall enter the Fairfield Canal or the penstock between Le Grand and Fairfield Canals.

#### 1.5 ROADS

- A. Existing roads and existing or planned construction roads shall be used for construction access within the limits defined herein.
- B. Contractor shall take all necessary precaution to insure the safety of University Students, Faculty and Visitors at all times.
- C. Contractor must obtain prior written approval from the University's Representative to block streets or parking areas at any time.
- D. The Contractor shall clear all roads (including Lake Road), parking areas and sidewalks affected by the Contractor's operations. This will include the immediate removal of dust, dirt, or any other debris or detritus so that roads and sidewalks are maintained in a safe and usable condition.

#### 1.6 PARKING

- A. All parking locations and arrangements must be coordinated and approved by University's Transportation and Parking Services (TAPS) prior to the start of work.
- B. A parking permit and fee to utilize the University of California, Merced (UCM) parking facilities will be required for all areas. Parking permits can be purchased on a monthly basis at a fee of \$30 per month per vehicle. Contact Transportation and Parking Services (TAPS) at (209) 228-4548 or visit the Facilities modular behind Central Plant for information on obtaining permits. A valid permit must be displayed at all times by all vehicles while parking on campus, whether in fenced construction areas or not.
- C. The Contractor shall not permit any personnel to park within the construction site or construction yard. Parking will be limited to a maximum of one company insured vehicle on site or within the construction yard.
- D. On-street parking is not permitted in areas not designated for parking or construction. <sup>Add02</sup>
- F. Vehicles found to be on university property without a valid permit, will be cited. Fines range from \$50.00 for no permit to \$445.00 for parking in a handicapped stall without a valid blue tag.

## 1.7 TRAFFIC CONTROL

- A. The Contractor shall adopt all practical means to minimize interference to traffic. Access to other facilities under construction shall be maintained at all times. The Contractor shall provide a schedule of any activity that will impact traffic, or any planned closing of the streets, for approval by the University's Representative and shall give a minimum of 14 working days notice before closing any street or access.
- B. Contractor shall furnish at Contractor's expense all barricades, lights, and other devices and means necessary to control traffic and shall maintain these devices at all times to protect the public and/or Work.
- C. It is the responsibility of the Contractor performing Work on or adjacent to a highway to install and maintain such devices as are necessary to provide safe passage for the traveling public through the Work, as well as for the safeguard of workers. Before Work begins, traffic control plans for handling traffic through a construction or maintenance Project shall be submitted to and approved by the University's Representative and public agency or authority having jurisdiction over the highway, in accordance with Chapter 5 of the CalTrans Traffic Manual.
- D. The Contractor shall comply with the provisions of 01 35 40 Environmental Mitigation.
- E. The Contractor shall ensure that all of the General Contractor's activities that affect traffic control, road use, materials delivery, equipment delivery, rights of way and preservation of 3<sup>rd</sup> party access rights are coordinated with those of all Separate Contractors.

## 1.8 SURROUNDING SITE CONDITION SURVEY

- A. Prior to commencing the Work, Contractor, and University's Representative shall tour the Project site together to examine and record damage to existing adjacent buildings, campus streets and city streets, bicycle paths, sidewalks, and all other improvements. This record shall serve as a basis for determination of subsequent damage due to Contractor's operations and shall be signed by all parties making the tour. Any cracks, sags, or damage to the adjacent buildings and improvements not noted in the original survey, but subsequently discovered, shall be reported to the University's Representative.

## 1.9 INTERRUPTION OF BUILDING SERVICES

- A. Planned utility service shutdowns shall be accomplished during periods of minimum usage. In some cases this will require Work activities before 8:00 A.M. and after 5:00 P.M. and weekend Work, at no additional cost to the University. At least 7 working days advance notice shall be given to the University's Representative before interruptions to utility service (refer to Exhibit 18 Utility Service Interruption/Shut Down Request) and other interferences with use of existing buildings, surrounding hardscape and roads.
- B. Shutdowns critical to the completion of the project shall be listed as Milestones on the project schedule. The Contractor shall program Work so that service will be restored in the minimum possible time, and shall cooperate with the University in reducing shutdowns of utility systems.

- C. The University reserves the right to deny shutdown requests based on scheduled work load, research projects, and usage of surrounding buildings or other activities planned on campus.

#### 1.10 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. The Drawings show, if applicable, existing above and below grade structures, drainage lines, storm drains, sewers, water, gas, electrical, hot water, and other utilities that are known to the University.
- B. Contractor shall locate all known existing installations before proceeding with construction operations that may cause damage to such installations. Existing installations shall be kept in service where possible and damage to them shall be repaired at no additional cost to the University.
- C. Existing underground structures and utilities shall be kept in service unless prior approval to interrupt or shutdown service is obtained from University's Representative. If damaged, they shall be repaired by the Contractor with no adjustment of Contract Sum or Contract Time.
- D. The Contractor shall coordinate all Work with the operations of separate Contractors as needed. This shall include, but not be limited to, the responsibility of the Contractor to coordinate with University's Representative.
- E. If any other structures or utilities are encountered, the Contractor shall request University's Representative to provide direction on how to proceed with the Work.
- F. If any structure or utility is damaged by the Contractor, the Contractor shall take appropriate action to ensure the safety of persons and property.
- G. No Work is to be performed on energized electrical equipment unless scheduled with the University's Representative. The University reserves the right to specify specific conditions for all Work involving energized high-voltage electrical equipment.
- H. General Contractor shall uncover, prior to any earthwork for new construction, all existing piping where crossings, interferences or connections are shown on the Drawings, from 1 foot below proposed construction limit to the existing ground surface. Any variation in the actual elevations and the indicated elevations shall be brought to the University's Representative's attention. If the Contractor does not expose all existing utilities, General Contractor shall not be entitled to additional compensation for Work necessary to avoid interferences.
- I. If interferences occur at locations other than the general locations shown on the Drawings, and such utilities are damaged before their locations have been established, or create an interference, the Contractor shall notify the University's Representative and a method for repairing the damage or correcting the interference shall be supplied by the University's Representative. Payment for additional Work due to interferences not shown on the Drawings shall be in accordance with the General Conditions.

- J. Care shall be exercised to prevent damage to adjacent facilities including walks, streets, curbs, and gutters; where equipment will pass over these obstructions suitable planking shall be placed. Damaged facilities, due to the Contractor operations, shall be removed and replaced at the Contractor's expense.

#### 1.11 PROTECTION OF PERSONNEL

- A. Contractor shall take proper precautions to ensure the safety of all persons at all times during the construction period.

#### 1.12 PROJECT SITE SECURITY

- A. The Contractor shall install and maintain 8' high chain link site security fencing and gates as shown on the Site Logistics Plan. Fencing at the building perimeter shall include black shade screen to shield construction activities from view. Contractor shall be responsible for keeping areas involved in this Work locked and secure at all times when Work is not in progress.
- B. All persons working on the Project site shall receive a site safety briefing and Natural Resource Awareness Training from the University prior to being allowed to start work.

#### 1.13 CONSTRUCTION STAGING & MULTIPLE CONSTRUCTION CONTRACTS

- A. The following describes the scheduling of the Work and the coordination required for the Work done by Separate Contractors:
  - 1. The University reserves the right to let other construction contracts.
  - 2. The following projects may be in progress at times during this project:
    - a. Campus 2020 Project
  - 3. Disagreements between the Contractor and other Separate Contractors about concurrent use of Work areas or access to the Project site which are not resolved by the participants shall be referred to the University's Representative and the Contractor agrees to abide by the University's Representative's determination as to concurrent use or priority of access and to perform its Work in compliance with the University's Representative's resolution at no additional cost to the University.
- B. All material and equipment for construction operations shall be brought in and the Work so conducted as to avoid any interference with existing University facilities or their normal operations, and with concurrent construction Work by other Separate Contractors.

#### 1.14 FINAL EXAM SCHEDULE

- A. Contractor shall be advised that academic finals week takes place on the UC Merced campus during May, August and December of each year. During these periods of time, students are involved in intensive testing relative to their academic course work. During these periods of time, noise level generated as a result of construction activity must be kept to a minimum. Contractors will be expected to Work with the University's requirements

to achieve a level of noise that is acceptable to the University. Actual schedule for finals weeks during each year will be coordinated with Contractor following the issuance of the Notice to Proceed.

#### 1.15 WORK SITE DECORUM

- A. Extreme care to limit noise and odors shall be taken at all times. Loud or unnecessary conversation shall be avoided. The playing of radios tapes, or compact discs shall be strictly prohibited.
- B. Contractor shall control the conduct of its employees and those of its subcontractors and suppliers so as to prevent interaction initiated by said employees with University of California Merced students, staff, or other individuals (except those associated with the Project), on or adjacent to the Project site. Without limitation, unwanted interaction by these employees includes whistling at, motioning toward, or initiating conversations with passersby. In the event that any employee initiates such unwanted interaction, or utilizes profanity, Contractor shall, either upon request of University's Representative or on its own initiative, replace said employee with another of equivalent technical skill, at no additional cost to the University.
- C. **Smoking is prohibited in and within 20 feet of any entrance, window, or air intake of all University buildings and in enclosed areas. Smoking will not be allowed in the construction area. Smoking will be allowed in a designated area within the construction storage yard only.**
- D. Firearms are prohibited on University property.
- E. Alcoholic beverages are prohibited on University property unless the prior written approval of the University's Representative is obtained.
- F. Pets are prohibited on the Project site.

#### 1.16 PUBLICITY

- A. Contractor shall not release any information, story, photograph, plan or drawing relating to the Project to anyone, including press or other public communications medium, except as submitted and approved for release by the University's Representative.

#### 1.17 PROJECT SIGN

- A. No signs or advertisements will be permitted on the Project site, except with express permission of University's Representative.

#### 1.18 JOB OFFICE

- A. Space on the Project Site is limited. Trailer space must be requested and approved by the University's Representative. Storage and office trailers are to be located in the temporary laydown area as shown on the Site Logistics. Space will be allocated by the University's Representative. Contractor shall provide and maintain all temporary facilities as required for completion of the Project. Verify location of temporary laydown area on drawings-

1.19 SALVAGE

- A. All material and equipment removed as part of this Project is the property of the Contractor and shall be removed from the Campus and legally disposed of, unless otherwise stated in the Contractor's "Scope of Work".

1.20 CLEANUP

- A. During the progress of the Work, the Contractor shall keep the Project site in a neat and clean condition that is free of debris to the satisfaction of the University's Representative. All materials and debris accumulated in conjunction with completing this Work shall be disposed of in the jobsite trash dumpsters provided by the Contractor and disposed of off campus. Contractor shall not use University refuse containers.

1.21 UNIVERSITY FURNISHED CONSTRUCTION DOCUMENTS

- A. University will furnish to the Contractor 1 set of Drawings and Specifications and 1 CD of the Drawings and Specifications upon an award of the Contract at no cost. If more than 1 set is required or if the Contractor wants the Drawings in another size other than the size issued with the Bidding Documents, the Contractor will pay the actual cost of reproduction for printing.

1.22 JOB CONDITIONS

- A. Protection: Where roof edge does not terminate in a parapet wall and/or where Work is in progress overhead and materials or objects could potentially fall, the Contractor is required to construct temporary covered pedestrian walkways over each building entrance. Walkway covers shall extend out 12 feet in length for the first floor and an additional 4 feet for each additional floor of the building. Walkway covers shall extend from face of building. Contractor shall be required to place and maintain yellow safety construction flagging or ropes with signage to prevent pedestrians from coming within 25 feet of Work in progress overhead and to route pedestrians in and out of building entrances.
- B. Safety Precautions: Perform Work in such a manner as to prevent damage to existing facilities to remain or to be salvaged. Hazardous Work shall not be left standing or hanging, but shall be knocked or pulled down to avoid damage or injury to employees or the public.
- C. Crane Operation, Staging and Storage
  1. Operator Training and Crane Certification: Prior to starting crane operations, General Contractor shall provide copies of operator's training and crane certification to the University's Representative.
  2. Crane Staging Area: Contractor shall be required to coordinate with the University's Representative a minimum of 5 working days in advance of loading and removal of materials from the roof. Contractor is responsible for providing necessary staging area for crane.
  3. Storage: Contractor shall not be allowed on-site crane storage unless with the prior written approval of the University's Representative.

1.23 NOT USED

1.24 PROJECT SITE SUPERINTENDENT

- A. Contractor shall employ a competent Project Site Superintendent/Foreman satisfactory to the University's Representative. The Project Site Superintendent/Foreman shall be in attendance at the Project site at all times during the performance of the Work. Project Site Superintendent/Foreman shall represent the Contractor and communications given to and received from the Project Site Supervisor shall be binding on Contractor.
- B. The Contractor shall submit to the University's Representative the qualifications of the Project Site Superintendent/Foreman prior to commencement of the Work. The University's Representative shall approve the Project Site Superintendent/Foreman based on his/her experience with projects similar to type, scope, size, and complexity.
- C. The Project Site Superintendent/Foreman approved for the Project by the University's Representative, must be able to proficiently read, write and verbally communicate in English. The Project Site Superintendent/Foreman may not perform the Work of any trade, pick-up materials, or perform any Work not directly related to the supervision and coordination of the Work at the Project site while Work is in progress.
- D. Failure to maintain a Project Site Superintendent/Foreman on the Project site at all times Work is in progress shall be considered a material breach of this Contract, entitling University to terminate the Contract or alternatively, issue a stop Work order until the Project Site Superintendent/Foreman is on the Project site. If, by virtue of issuance of said stop Work order, General Contractor fails to complete the Contract on time, General Contractor will be assessed Liquidated Damages in accordance with the Agreement.
- E. If the Project Site Superintendent/Foreman fails to perform to the satisfaction of the University's Representative, the University's Representative may, upon 15 days written notice, require the General Contractor to remove the Project Site Superintendent/Foreman from the Project and replace the Project Site Superintendent/Foreman with a replacement acceptable to the University's Representative.
- F. If the Contractor elects a replacement of the Project Site Superintendent/Foreman, such replacement shall be discussed with the University's Representative prior to actual replacement. The same criteria employed by the University's Representative to approve the initial Project Site Superintendent/Foreman shall also apply to the University's Representative's approval of any subsequent Project Site Superintendent/Foreman.

1.25 OTHER CONTRACTOR SITE PERSONNEL

- A. In addition to the Project Site Superintendent/Foreman, the Contractor shall provide site personnel of quality and quantity sufficient to carry out all of the on-site Contractor responsibilities described in the Contract Documents. See Instructions to Bidders for other site personnel requirements that may also be required.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 35 00



SECTION 01 35 40 - ENVIRONMENTAL MITIGATION

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Related Sections

1. 01 81 13 LEED® Requirements
2. 01 74 19 Site Waste Management Program
3. 01 35 43 Hazardous Materials Procedures

B. Requirements

1. The Environmental Mitigation requirements for this Project are recorded in this Specification Section. The mitigation measures may include, but are not limited to, procedures and standards to control:
  - a. Dust Palliation
    - (1) All construction, demolition, excavation, extraction or other earthmoving activities shall comply with the San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII - Fugitive PM10 Prohibitions.
    - (2) All disturbed areas, including storage piles, shall be sprinkled with water or other dust control agents/chemical stabilizers acceptable to SJVAPCD, or shall be covered with vegetative ground cover, so as to effectively prevent dust emissions. Additional watering or acceptable dust control agents/chemicals shall be applied during dry weather or windy days until dust emissions are not visible.
    - (3) Trucks hauling dirt and debris shall be effectively wetted and/or maintain not less than six inches freeboard and/or cover the top of the load to reduce wind blown dust or spills.
    - (4) Dirt or debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of particulate matter caused by vehicle movement. Approach routes to the Project site shall be cleaned daily of construction related dirt or mud. The use of dry rotary brushes and blower devices is prohibited except where preceded by sufficient wetting to limit visible dust emissions and the prior written approval of the University's Representative.
    - (5) On-site stockpiles of excavated material shall be covered or watered.
    - (6) Traffic speeds on unpaved roads shall be limited to 15 mph.
    - (7) If an area having 0.5 acres or more of disturbed surface area remains unused for seven or more calendar days, the area must comply with conditions for a stabilized surface area as defined in Rule 8011 of SJVAPCD and General Contractor shall comply with the record keeping requirements specified in Rule 8011 of SJVAPCD.

- b. Other Air Pollutants
  - (1) When feasible, construction equipment should use alternative fuel sources such as propane, natural gas or electricity.
  - (2) Minimize idling time of machinery to a maximum of 10 minutes when construction equipment is not in use.
  - (3) Construction equipment rated greater than 100 horsepower shall have, to the extent feasible, diesel exhaust controlled by use of catalyst-based diesel particulate filters.
  - (4) Use low-emission on-site station equipment.
- c. Noise
  - (1) Construction equipment shall be properly outfitted and maintained with adequate mufflers and other appropriate noise reduction devices to minimize construction-generated noise.
  - (2) Stationary noise sources such as generators or pumps shall be located away from noise sensitive land-uses and occupied buildings.
  - (3) Prior to construction activities, Contractor shall coordinate with the County Parks and Recreation Division to reduce the likelihood that planned events at the Lake Yosemite Park are adversely affected by project construction.
  - (4) Comply with all applicable sound ordinances as required.
  - (5) Should the Contractor need to generate construction noise adjacent to occupied buildings, the Contractor shall inform the University's Representative in writing 14 calendar days prior to generating the noise.
  - (6) The Contractor shall comply with the provisions of Section 01 35 00 Special Requirements with regard to Work Hours.
- d. Odors
  - (1) Work that causes excessive odors shall be performed only after coordination with the University's Representative. Filtering of air intakes to air handling units may be needed to prevent odors and vapors from entering buildings.
  - (2) Contractor shall provide 14 working days advance written notice to the University's Representative in order for advance notices to be forwarded to building occupants. Work stoppage may occur if advance notification has not been coordinated or if odors and vapors from the work are found to generate complaints from building occupants.
- e. Light
  - (1) The Contractor shall minimize up-light and light spill by focusing light sources and using shielding.
  - (2) No light sources shall be directed across the site boundaries.

## 1.2 ARCHAEOLOGICAL RESOURCES

### A. GENERAL

- 1. If during the course of construction, evidence of deposits of historical or archaeological interest is found, the Contractor shall cease the Work affecting the

find and immediately notify the University's Representative and shall not disturb deposits until written notice from University's Representative is given to proceed.

2. Contractor will be compensated for lost time or changes in construction to avoid the find based upon normal change order procedures if Critical Path is affected.

B. Procedures

1. If a potentially significant archaeological find is identified during construction, the University may incorporate into the proposed project design measures that will minimize or eliminate direct impacts to the deposit. These may include avoidance of the site by inclusion in landscaping or open space, placement of fill over the site, and/or project redesign. If this is not feasible, or if such measures will not ensure the avoidance of impacts, the University will ensure that an archaeological testing program is carried out to assess the significance of the find.
2. If a find is determined to be significant, and if it cannot be preserved intact through project design measures, then the University will retain an archaeologist to design and carry out a treatment plan to document the data and/or preserve such scientific samples of the data for which the site is significant as may be appropriate, given the significance of the find.
3. Any significant finds that are recovered shall be retained by University and will be donated to an appropriate cultural or historical center. Unauthorized collection of artifacts is prohibited. If human remains are encountered, Work will be halted and the Merced County Coroner will be contacted immediately by the University's Representative. If human remains are determined to be Native American, the Coroner will notify the Native American Heritage Commission. The Commission will then notify the person it believes to be the most likely descendant. That descendant will work with the University to develop a program for reinternment of the remains and any associated artifacts.
4. When Native American archaeological, ethnographic, or spiritual resources are found, identification and handling of those resources will be conducted jointly by a University appointed Archaeologist and Native American representatives who are approved by the local Native American community as scholars of their cultural traditions. The Archaeologist shall either be certified by the Society of Professional Archaeologist, or meet the Federal Standards appearing in 36 CFR 61. If no approved Native American representative is available, persons who represent tribal government and/or organizations in the surrounding region shall be consulted. If historic archaeological resources are found, identification and handling of those resources will be conducted by historical archaeologists or architectural historians retained by the University.

1.3 PALEONTOLOGICAL RESOURCES

A. General

1. If during the course of construction, evidence of deposits of paleontological interest is found, the Contractor shall cease the Work affecting the find and

immediately notify the University's Representative. Do not disturb deposits until written notice from University's Representative is given to proceed.

2. Contractor will be compensated for lost time or changes in construction to avoid the find based upon normal change order procedures if Critical Path is affected.

B. Procedures

1. Prior to project construction, construction personnel shall be informed by the Contractor of the potential for encountering significant paleontological resources.
2. If a potentially significant paleontological find is discovered, the Contractor shall cease all operations in the area of the find until a University appointed paleontologist has been afforded the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find.
3. Collection of fossil resources by other than the University's consulting paleontologist is prohibited.
4. A University appointed, qualified paleontologist may be intermittently present to inspect exposures of the Merhten Formation, North Merced Gravels, and Riverbank Formation during construction operations to ensure that paleontological resources are not destroyed by project construction.

1.4 NOXIOUS OR TOXIC MATERIALS

A. The Contractor shall ensure that:

1. No noxious or toxic materials shall be used in or around occupied buildings without prior approval of the University's Representative.
2. Chemical wastes shall be stored in covered metal containers and shall be removed from the premises daily.
3. There shall be no accumulations of wastes that create hazardous conditions.
4. Adequate ventilation is provided during use of volatile or noxious substances. Such materials shall only be used after 48 hours previous notification to the University's Representative and preferably on weekends or "down" periods.
5. Chemicals, such as mineral spirits, oil, or paint thinner, are not dumped into storm or sanitary drains or on University property or on any adjoining property.
6. Vehicle maintenance or servicing shall not spill oil or fuel onto the ground and if a spill occurs, it shall be cleaned up immediately and the soil disposed of according to local, State, and/or Federal requirements.
7. Chemical storage, including fuel and oil, shall be double contained.
8. The Contractor's Project Site Superintendent shall be trained in the prevention and correction of spills.
9. Contractor shall have immediate access to spill control equipment, such as absorbent, shovels, and containers.

1.5 REMOVAL AND DISPOSAL OF EXCESS SOIL

- A. All materials and debris accumulated in conjunction with completing this Work shall be disposed of legally by the Contractor off the University's property. Contractor shall not

use University refuse containers. Clear soil spoils shall be transported and deposited at a designated on-campus site.

- B. Contractor is to coordinate with University Representative to identify the on-campus location of a temporary staging area for storage of excavated soil. The intent of this area is to serve as a nearby storage area for excavated soil intended by the Contractor to be used for backfill or fill later in the project. This area is to be restored to original condition after its use is no longer required.

#### 1.6 REMOVAL AND DISPOSAL OF WASTE MATERIALS

- A. All waste materials resulting from the process of clearing and construction shall be legally disposed of by the Contractor as follows:
  - 1. All refuse and debris, concrete and other inert materials, combustible and incombustible substances, resulting from the processes of construction, shall be removed from the University's property. The Contractor shall not use any refuse container belonging to the University. The Contractor shall provide debris boxes for the use of the Contractor and all of their Subcontractors and dispose all debris off-site excepting chemical and hazardous waste which shall be disposed of by the Subcontractor generating the waste. Contractor shall be responsible for depositing their waste into the debris boxes provided by the Contractor on a daily basis.
  - 2. Chemical Waste: All chemical waste, including solvents, oils or any other material that may be harmful to plant life, shall be disposed of in accordance with local, State and/or Federal regulations. Chemical waste shall not be stored on the University's property. At completion of Work, any contaminated soil shall be removed from the University's property and replaced with good soil by the Contractor at no additional cost to the University.
- B. The Contractor shall not burn or bury rubbish or waste materials on the University's property.
- C. During construction, the Contractor shall maintain buildings, premises and property free from accumulations of waste materials and rubbish. The Contractor shall legally dispose of such waste, rubbish and debris at reasonable intervals off the University's property.

#### 1.7 CONTROL OF NONNATIVE & INVASIVE PLANT SPECIES

- A. Contractor shall ensure that seeds from invasive plant species are not transported into the Campus site by earth moving equipment. At a minimum, the Contractor shall ensure that:
  - 1. All earth moving equipment shall be washed down (wheels, under-carriage, bucket/bed, etc.) prior to being transported to the Project site. All earth moving equipment shall be clean and free of seeds or other plant material before being brought on site.
  - 2. The Contractor shall notify the University's Representative of the source location of all off-site fill material a minimum of 10 calendar days prior to importing

material to the Project site and appropriate steps shall be taken to minimize the potential for invasive species to colonize areas disturbed during construction due to use of such fill.

3. Any organic material used during project construction for erosion control, or any material used for hydroseeding or revegetating disturbed areas is certified free of invasive species.

#### 1.8 PROTECTION OF SENSITIVE AREAS OUTSIDE PROJECT SITE BOUNDARY

- A. Contractor shall install and maintain all temporary construction fencing around the Project site in accordance with Section 01 56 00 Temporary Barriers and Enclosures and in accordance with fencing layout shown on the Site Logistics Plan. Fencing shown to be installed at the building site, as opposed to the laydown area, will include black shade meshing to obstruct views into the construction site.
- B. Contractor shall operate strictly within the confines of the fence and in the staging area described in the Site Logistics Plan (see Information Available to Bidders).
- C. In no instances shall construction related vehicles or Contractor's personnel travel beyond the Project site boundary except on roads.
- D. In no instance shall the Contractor allow any material, whether solid or liquid, to migrate from the Project site across, under or over the temporary construction fencing except when said material is being removed from the Project site in accordance with the Contract Documents.

#### 1.9 NATURAL RESOURCE AWARENESS TRAINING FOR CONSTRUCTION PERSONNEL

- A. Training Program
  1. Prior to working on the Project site, all construction personnel shall attend a training program provided by the University Representative on Monday and Wednesday mornings at 7:30am or when agreeable with University's Representative. The training will include at minimum, a description of the species at risk and their habitat, the importance of the species and their habitat, the general measures being implemented to conserve the sensitive areas/species, and the boundaries within which the project may be accomplished.
  2. The training shall be conducted in English and shall consist of a presentation and the distribution of appropriate literature. The Contractor shall ensure that all Subcontractor and Contractor supplier personnel attend a training session before they start working at the Project site.
  3. The Contractor shall ensure that the following site regulations, which will be identified in the Training program, are adhered to:
    - a. All food related items shall be properly disposed of, and signs indicating that the feeding of wildlife is prohibited shall be placed at the Project site.
    - b. Vehicle traffic shall occur primarily between dawn and dusk, and shall be limited to 20 mph to reduce the potential for wildlife road mortality.

- c. Any trench or pit shall be constructed in such a way as to provide ramps of either fill or planks to prevent kit fox and other species from becoming entrapped.
- d. Pipes, culverts, etc. greater than four inches in diameter shall be stored in such a way as to prohibit foxes or other species from using these areas as temporary refuge. In addition, these structures shall be thoroughly inspected each morning for kit fox or other species.
- e. No firearms shall be allowed on University Property.
- f. No pets shall be permitted on University Property.
- g. The use of pesticides on the Project site by the General Contractor, including but not limited to rodenticides, insecticides and herbicides, is prohibited unless prior written approval of the University's Representative is obtained.
- h. Construction vehicles shall be limited to a maximum speed of 10 mph in the vicinity of breeding ponds of California tiger salamander during the salamander movement period. The location of the breeding ponds and dates of the movement period shall be identified by the University's Representative.
- i. If construction activities occur within 0.6 miles of salamander breeding ponds, the Contractor shall erect drift fences or other effective salamander barriers around the site before 1<sup>st</sup> February in the winter prior to the start of construction. The fences shall be positioned so as to allow salamander's access to the breeding ponds but to exclude them from the Project site. Prior to fence erection, layout of the fences shall be submitted to the University's Representative for review and approval.
- j. The University's Representative shall identify any areas containing burrowing owls. The Contractor shall establish "Sensitive Areas" around the occupied owl holes identified by the University's Representative. The Sensitive Areas shall not be disturbed by the Contractor. The Sensitive Areas shall extend to a distance of 160 feet from each occupied burrow during the non-breeding season of 1<sup>st</sup> September through 31 January. The sensitive Areas shall extend to a distance of 250 feet from each occupied burrow during the breeding season of 1<sup>st</sup> February through 31<sup>st</sup> August. The Contractor shall erect a temporary fence during the breeding season around occupied burrows. If in the opinion of the University's Representative, the Sensitive Area method is impractical, the owls may be passively relocated. To relocate the owls, the Contractor shall fit one-way doors across the entrances to those burrows identified by the University's Representative. The doors shall be positioned so that the owls can exit but not enter their burrows. The doors shall remain in place for 72 hours. Before and during the relocation process, the Contractor shall establish a 250 feet Sensitive Area around the burrows identified for relocation. No relocation activity shall be carried out during the breeding season.
- k. The University's Representative shall identify the location of active raptor nests adjacent to the Project site. Should an active Swanson's Hawk nest be located within 1000 feet of the Project site, or an active nest of another raptor species be identified within 250 feet of active construction, the University's Representative will, in consultation with

the California Department of Fish & Game, determine the actions necessary to protect the nest site. Such actions may include avoiding construction within a distance from the nest determined by the University's Representative for a period determined by the University's Representative

1.10 AUTHORITY OF THE UNIVERSITY'S REPRESENTATIVE TO SUSPEND WORK

- A. The University's Representative has the authority to suspend construction work when such work causes or threatens to cause harm to sensitive habitat or species.
- B. Contractor will be fully responsible for any and all damages and sanctions placed against the Project for any violations of these requirements.

1.11 SURFACE WATER CONTROL

- A. All portions of the Work shall be kept free of standing water at all times during construction of the Work herein specified. Where required, temporary drainage ditches, berms, or pumping systems shall be constructed to divert drainage water away from the Project site and the resultant water shall be carried to the nearest water course approved by the University's Representative and disposed of without erosion to the surrounding area. Care shall be taken to prevent silting of the water courses. Silt that is deposited, as a result of the Work in this Project, shall be removed and disposed of by the Contractor, at the Contractor's expense and to the satisfaction of the University's Representative. The General Contractor shall follow CALTRANS "Handbook of Practices, Storm Water Pollution Practice."

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 35 40



**SECTION 01 35 43**  
**HAZARDOUS MATERIALS PROCEDURES**

PART 1 - GENERAL

1.1 CONTRACTOR'S RESPONSIBILITY

- A. Except as otherwise specified, in the event Contractor encounters on the Project site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), lead, or other hazardous substances that have not been rendered harmless, Contractor shall immediately stop work in the area affected and report the condition to the University's Representative in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of University and Contractor if in fact the material is asbestos, PCB, lead, or other hazardous substances and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos, PCB, lead, or other hazardous substances, or when such materials have been rendered harmless.
- B. Disclose any hazardous substance or condition exposed during the Work to the University's Representative for decision or remedy.
- C. In no event, shall the Contractor install materials that contain asbestos, PCB, lead or other known hazardous materials without specific prior written approval by the University's Representative.
- D. Disposal of lighting ballasts containing PCB's shall be accomplished by the University. The Contractor shall coordinate with the University's Representative regarding a date, location and time for delivery to a location on Campus to be designated.
- E. Regulated Carcinogens by California Code of Regulations (CCR) Title 8, Section 5200 et seq.
  - 1. Products containing chemicals regulated as carcinogens by California Occupational Safety and Health Act (OSHA) are not allowed for use on University projects. The OSHA regulated carcinogens are:
    - a. 2-Acetylaminofluorene, 5209
    - b. 4-Aminodiphenyl
    - c. Benzidine (and its salts)
    - d. 3,3'-Dichlorobenzidine (and its salts)
    - e. 4-Dimethylaminoazobenzene
    - f. alpha-Naphthylamine
    - g. beta- Naphthylamine
    - h. 4-Nitrobiphenyl
    - i. N-Nitrosodimethylamine
    - j. beta-Propiolactone
    - k. bis-Chloromethyl ether
    - l. Methyl chloromethyl ether
    - m. Ethyleneimine
    - n. Methylene Chloride, 5202
    - o. Methylene dianiline (MDA), 1535, 5200
    - p. Cadmium, 1532, 5207
    - q. Asbestos, 1529, 5208, 5208.1, 8358

- r. Vinyl Chloride, 5210
  - s. Coke Oven Emissions, 5211
  - t. 1,2-Dibromo-3-Chloropropane (DBCP), 5212
  - u. Acrylonitrile, 5213
  - v. Inorganic Arsenic, 5214
  - w. 4,4'-Methylenebis(2-Chloroaniline) (MBOCA), 5215
  - x. Formaldehyde, 5217
  - y. Benzene, 5218
  - z. Ethylene Dibromide (EDB), 5219
  - aa. Ethylene Oxide (EtO), 5220
  - bb. 1,3 Butadiene, 5201
- 2. Case-by-case exceptions may be considered for products containing the following COSHA recognized carcinogens:
    - a. Methylene Chloride, 5202
    - b. Cadmium, 1532, 5207
    - c. Inorganic Arsenic, 5214
    - d. Formaldehyde, 5217
    - e. Benzene, 5218
  - 3. Case-by-case exceptions may only be made when suitable alternative products are not available. Such exceptions are subject to approval by the University's Representative.
  - 4. Exceptions require that the Contractor shall have an established carcinogen program as required by COSHA and shall submit to University's Representative, a copy of the COSHA Confirmation of Report for COSHA carcinogens.
  - 5. When exceptions are granted the Contractor is responsible for providing to the University's Representative a copy of the semi-annual Confirmation of Report received from COSHA or, in lieu of that, a copy of the Contractor's semi-annual report as submitted to COSHA at periods not to exceed 6 months, or at project closeout, whichever occurs first.

## 1.2 ASBESTOS IN BUILDINGS NOTIFICATION

- A. California Health and Safety Code, Section 25915, Chapter 10.4, Division 20 requires UC Merced employees and contractors working for the campus to be notified of the presence of asbestos in buildings constructed prior to 1979. For information about asbestos in specific buildings, contact the University's Representative.
- B. It is important to note that the presence of asbestos does not mean you have been exposed to asbestos. Exposure strictly refers to the inhalation or ingestion of friable asbestos particles. Asbestos becomes friable through drilling, sanding or similar destructive processes usually associated with remodeling or demolition work. Intact, bonded, sealed and undisturbed asbestos does not pose a hazard.
- C. Contractors who disturb or potentially disturb friable or non-friable asbestos must comply with all Federal State and Local rules and regulations regarding hazardous materials.

## 1.3 LEAD BASED PAINT IN BUILDINGS

- A. The California Department of Health Services requires the certification of employees and supervisors performing lead related construction activities in residential and public

buildings, as defined in Title 17, California Code of Regulations, Division 1, Chapter 8. Lead related construction work is defined in Title 17 as any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead.

- B. It is important to note that the presence of lead does not mean you have been exposed to lead. Exposure strictly refers to the inhalation or ingestion of lead dust. Lead becomes dust through drilling, sanding or similar destructive processes usually associated with remodeling or demolition work. Intact, bonded, sealed and undisturbed lead does not pose a hazard.
- C. For information about lead in specific buildings, contact the University Representative
- D. Contractors who disturb or potentially disturb lead must comply with all Federal State and Local rules and regulations regarding hazardous materials.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 35 43

**SECTION 01 41 00**  
**REGULATORY REQUIREMENTS**

PART 1 - GENERAL

1.1 CODES, AGENCIES, AND REFERENCES

- A. The Work shall be performed in accordance with Applicable Code Requirements and applicable requirements of all other regulatory agencies, including, but not limited to, the following:
1. Americans with Disabilities Act - Title II.
  2. California Environmental Quality Act.
  3. California Health and Safety Code.
  4. National Fire Protection Association (NFPA).
  5. Federal Occupational Safety and Health Administration.
  6. Federal Clean Water Act, including but not limited to the Storm Water Pollution Prevention requirements.
  7. Federal Endangered Species Act.
  8. Federal Clean Air Act.
  9. Porter-Cologne Water Quality Act, State of California
  10. Endangered Species Act, State of California
  11. California Fish & Game Code, Section 1600, et. seq.
  12. Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Control Law.
  13. Comprehensive Environmental Response and Cleanup Liability Act (CERCLA)
  14. California Building Code (CBC)

1.2 STANDARDS AND CODES

- A. Applicable laws, codes, rules, regulations, ordinances and standards
1. Code of Federal Regulations
    - a. Title 33, Navigation and Navigable Waters
    - b. Title 40, Protection of Environment
    - c. Title 50, Wildlife and Fisheries
  2. California Code of Regulations (CCR)
    - a. Title 8, Industrial Relations/Elevators
    - b. Title 14, Natural Resources
    - c. Title 17, Public Health
    - d. Title 19, Public Safety

- e. Title 20, Public Utilities and Energy
  - f. Title 21, Public Works
  - g. Title 22, Environmental Health
  - h. Title 23, Waters
  - i. Title 24, California Building Standards Code
    - 1) Part 2, California Building Code 2010
    - 2) Part 3, California Electric Code 2010
    - 3) Part 4, California Mechanical Code 2010
    - 4) Part 5, California Plumbing Code 2010
    - 5) Part 6, California Energy Code 2010
    - 6) Part 7, California Elevator Safety Construction Code 2007
    - 7) Part 9, California Fire Code 2010
    - 8) Part 11 California Green Building Standards Code 2010
    - 9) Part 12, California State Reference Standards 2010
  - j. Title 27 Environmental Protection 2007
3. San Joaquin Valley Air Pollution Control District Regulation #8 2004

### 1.3 REFERENCES

- A. Unless otherwise specified, specific references to codes, regulations, standards, manufacturers' instructions, or requirements of regulatory agencies, when used to specify requirements for materials or design elements, shall mean the latest edition of each in effect at the date of submission of bids, or the date of the Change Order (Exhibit 9) or Field Order (Exhibit 8), as applicable.

### 1.4 CONFLICTS

- A. Unless otherwise directed by the University's Representative, if a conflict exists between referenced regulatory requirements and the Contract Documents, the Contractor shall refer the matter to the University's Representative for further instruction.
- B. Nothing stated in this Section of the Specifications or other Sections of the Specifications, the other Contract Documents or the Bidding Documents or shown on the Drawings shall be construed as allowing Work that is not in strict compliance with all applicable Federal, State, regional, and local statutes, laws, regulations, rules, ordinances, codes and standards.

### 1.5 TRENCHING AND SHORING

- A. All Work shall be in full accordance, but not necessarily limited to the following codes and regulations: Titles as listed in Section 1.2 Standards and Codes above, State of California, California Code of Regulations (CCR), California Occupational Safety and Health Administration (OSHA).
  - 1. Pursuant to Labor Code 6707, the General Contractor shall include in the bid all costs incident to the provisions of adequate sheeting, shoring, bracing or equivalent method for

- the protection of life or limb that shall conform to applicable Federal and State safety orders.
2. Before beginning any excavation 5 feet or more in depth, the Contractor shall submit to the University's Representative a detailed Drawing showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation. The proposed design shall comply with the standards established by the State of California Construction Safety Orders, Title 8 and Title 24 of the California Code of Regulations (CCR). If the design varies from such shoring system standards, the Drawing shall be prepared by a registered civil or structural engineer whose name and registration number shall be indicated on the Drawing. If a dispute arises as to whether the plan must be prepared by a registered civil or structural engineer, the University's Representative's determination of the matter shall be final and conclusive on the Contractor. The cost of required engineering services shall be borne by the Contractor and shall be deemed to have been included in the Contract Sum for the Work as stated in the Agreement.
  3. Neither the review nor approval of any Drawing showing the design of shoring, bracing, sloping, or other provisions for worker protection, shall relieve the Contractor from the obligation to comply with construction State of California Construction Safety Order and Title 24 of the California Code of Regulations (CCR) for the design and construction of such protective Work, and the Contractor shall indemnify the University and the University's Representative from any and all claims, liability, costs, actions and causes of action arising out of or related to the failure of such protective systems. The Contractor shall defend the University, its officers, employees, Design Professional and agents and the University's Representative in any litigation or proceeding brought with respect to the failure of such protective systems.
  4. All Work including any temporary construction shall be in full compliance with the latest orders of the Division of Industrial Safety of the State of California and all codes and regulations as called for hereinafter in these specifications.

#### 1.6 REGULATORY NOTIFICATIONS

- A. Submit all required notifications to Federal, State of California, State in which disposal facility is located if not in California, regional, and local agencies with regulatory responsibilities associated with the Work activities that are included in the Contract. All notifications shall be served in writing, in the form required by the agency requiring notification, and in a timely manner so as not to negatively impact the Project schedule. Serve notifications at least 10 working days in advance (or earlier if required by agency) of activity requiring notice. The Contractor shall serve all required notifications in writing to all governmental and quasi-government agencies having notification requirements pertaining to any portion of the Work included in the Project.
- B. Contractor shall comply with the State General Construction Activity Storm water Permit National Pollutant Discharge Eliminate System (NPDES) for the campus and comply with the University's Storm Water Pollution Prevention Plan.

1.7 NOTIFICATIONS, CERTIFICATES AND UNIFORM HAZARADOUS WASTE MANIFEST

A. Permits

1. Contractor will not be required to obtain a County of Merced building permit.

B. Fire Department

1. Contractor shall be responsible for issuing in writing to the University's Representative the following notifications prior to starting site Work:
  - a. Hazardous Condition Notification - Hot Work: must be coordinated before starting any hot work (welding, burning, or cutting, etc.) involving use of gas or electric welding equipment. Contractor shall report to the University's Representative, at the beginning and 30 minutes prior to the end of each shift that such "hot" work takes place
  - b. Hazardous Conditions Notification-General: for the storage or use of any flammable liquid in excess of 10 gallons or in any confined area where vapors can be ignited. The General Contractor shall report to the University's Representative at the beginning and 30 minutes prior to the end of each shift that such work takes place
  - c. Hazardous Condition Notification-Special Conditions: Coordinate in advance with the University's Representative before restricting access to or blocking of any building exit or Work that will require the shutdown of building fire protection or alarm systems. The General Contractor shall report to the University's Representative at the beginning and 30 minutes prior to the end of each shift that such work takes place
  - d. At the end of the Work, the Contractor must submit Automatic Sprinkler Systems-Material and Test Certificate for Aboveground Piping and Automatic Sprinkler Systems- Material and Test Certificate for Underground Piping for approval by the University (Exhibits 20 and 21). The Automatic Sprinkler underground and aboveground will not be accepted until these certificates have been completed and submitted.

- C. Prior to commencing clearing, excavation and trenching, Contractor shall locate all known existing installations before proceeding with construction operations that may cause damage to such installation. Existing installations shall be kept in service where possible and damage to them shall be repaired at no additional cost to the University.

- D. Uniform Hazardous Waste Manifest: Contractor shall be responsible for coordination with the University's Representative for obtaining a Uniform Hazardous Waste Manifest prior to removal of asbestos containing materials, polychlorinated biphenyl (PCB), or other hazardous materials from the Project site. Manifest will be provided by the University's Representative. Only the University's Representative will be allowed to sign individual manifests on behalf of the Contractor / University.

1.8 CIVIL OR CRIMINAL PENALTIES OR FINES

- A. Contractor shall be liable for the payment of any and all civil or criminal penalties or fines imposed by the U.S. Fish & Wildlife Service (USFWS), U.S. Army Corps of Engineers

(USACE), California Department of Fish & Game (CDFG), Central Valley Regional Water Quality Control Board (CVRWQCB) or any other applicable regulatory agency for Contractor's violations of the federal Endangered Species Act (ESA), Clean Water Act (CWA), California Endangered Species Act (CESA), Porter-Cologne Water Quality Control Act (Porter-Cologne); any regulation promulgated to implement said statutes; the UC Merced Biological Opinion; or any applicable authorization issued by the USFWS, USACE, CDFG, CVRWQCB, or other applicable federal, state or local regulatory agency.

- B. In the event Contractor is found liable for civil actions under the abovementioned statutes, regulations, permits or authorizations, Contractor shall be responsible for the payment of any civil penalties imposed by any applicable regulatory agency. Penalties may vary according to the applicable statute, including but not limited to, penalties of up to \$50,000 per day of violation of the CWA, \$25,000 for each ESA violation, and \$15,000 per day of violation of Porter-Cologne.
- C. In the event Contractor is convicted of criminal actions under the abovementioned statutes, regulations, permits or authorizations, Contractor shall be responsible for satisfying applicable terms of imprisonment and the payment of any criminal fines imposed by the regulatory agency. Fines may vary according to the applicable statute, including but not limited to, fines of \$250,000 per day of violation of the CWA, \$50,000 for each ESA violation, and \$15,000 per day of violation of Porter-Cologne.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 41 00



**SECTION 01 42 13**  
**ABBREVIATIONS, SYMBOLS & DEFINITIONS**

PART 1 - GENERAL

1.1 ABBREVIATIONS

A. The following abbreviations of organizations may be used in the Contract Documents:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers' Association
AAN	American Association of Nurserymen, Inc.
AASHTO	American Association of State Highway and Transportation Officials
ABAG	Association of Bay Area Governments
ABPA	Acoustical and Board Products Association
ABPTA	American Bearing Power Transmission Association
ACI	American Concrete Institute
ACIL	American Council of Independent Laboratories
ACPA	American Concrete Pipe Association
ADA	Americans with Disabilities Act of 1990
ADAAG	American with Disabilities Act Accessibility Guidelines
ADC	Air Diffusion Council
AFBMA	Anti-Friction Bearing Manufacturers Association
AFI	Air Filter Institute
AGA	American Gas Association
AF&PA	American Forest and Paper Association
AGC	Associated General Contractors of America
AHA	American Hardboard Association
AI	The Asphalt Institute
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AIMA	Acoustical and Insulation Materials Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALSC	American Lumber Standards Committee
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
AOAC	Association of Official Analytical Chemists
APA	American Plywood Association
API	American Petroleum Institute
AQMD	Air Quality Management District
ARI	Air-Conditioning and Refrigeration Institute
ASA	American Standards Association
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASME	American Society of Mechanical Engineers Association
ASTM	American Society for Testing and Materials
AWCI	Association of Wall and Ceiling Industries
AWG	American Wire Gauge
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers' Association
BICSI	Building Industry Consulting Service International
BOCA	Building Officials and Code Administrators
CAC	California Administrative Code
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CCR	California Code of Regulations
CDA	Copper Development Association, Inc.
CDFG	California Department Fish and Game
CE	Corps of Engineers (U.S. Dept. of the Army)
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response and Cleanup Liability Act
CESO	California Elevator Safety Order
CGA	Compressed Gas Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturer's Institute
CLPA	California Lathing and Plastering Association
CMC	California Mechanical Code
CMM	State of California, Business, Transportation and Housing Agency, Department of Transportation "Materials Manual"
COSHA	California Occupational Safety and Health Act
CPC	California Plumbing Code
CPSC	Consumer Product Safety Commission
CRI	Carpet and Rug Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards of NBS (U.S. Dept. of Commerce)
CSS	State of California, Business, Transportation and Housing Agency, Department of Transportation "Standard Specifications"
CTI	Cooling Tower Institute
CVRWQCB	Central Valley Regional Water Quality Control Board
DHI	Door & Hardware Institute
DHS	California Department of Health Services
DSA	Division of State Architect
DSA/AC	Division of State Architect, Access Compliance Section
EIA	Electronic Industrial Alliance
EPA	Environmental Protection Agency

ESO	Electrical Safety Orders of Division of Industrial Safety, Title 8, CAC
ETL	Electrical Testing Laboratories
FCC	Federal Communications Commission
FFDA	Federal Food and Drug Administration
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual System, Factory Mutual Engineering Corporation
FS	Federal Specifications
FSC	Forest Stewardship Council
GA	Gypsum Association
GFI	Ground Fault Interrupter
HCP	Habitat Conservation Plan
HEPA	High Efficiency Particulate Air
HI	Hydronics Institute
HMI	Hoists Manufacturers Institute
HMMA	Hollow Metal Manufacturers Association
HPMA	Hardwood Plywood Manufacturers Association
IAPMO	International Association of Plumbing and Mechanical Officials
IAQ	Indoor Air Quality
IBEW	International Brotherhood of Electrical Workers
IBR	Institute of Boiler and Radiator Manufacturers
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineering Association
IEC	International Electrotechnical Commission
IEQ	Indoor Environmental Quality
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
IPCEA	Insulated Power Cable Engineers' Association
ISA	Instrument Society of America
ISO	International Standards Organization
ITU	International Telecommunications Union
LEED®	Leadership in Energy & Environmental Design
LIA	Lead Industries Association
MBMA	Metal Building Manufacturer's Association
MIA	Marble Institute of America
MID	Merced Irrigation District
MIL	U.S. Government, Military Specification
MLSFA	Metal Lath/Steel Framing Association
MM	State of California, Business, Transportation and Housing Agency, Department of Transportation "Materials Manual"
MSS	Manufacturers Standardization Society of Valves and Fittings Industry
NAAB	National Association of Air Balance
NAAMM	The National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NBFU	National Board of Fire Underwriters
NBGQA	National Building Granite Quarries Association, Inc.
NBHA	National Builders' Hardware Association

NBS	National Bureau of Standards
NCCP	National Communities Conservation Plan
NCMA	National Concrete Masonry Association
NCPWB	National Certified Pipe Welding Bureau
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Protection Act
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NHLA	National Hardwood Lumber Association
NIOSH	National Institute of Occupational Safety and Health
NPA	National Particleboard Association
NPDES	National Pollutant Discharge Eliminate System
NRC	Noise Reduction Coefficient
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association, Inc.
NWWDA	National Wood Window and Door Association
OSHA	Office of Safety and Health Act
OSHPD	Office of Statewide Health Planning and Development
PCA	Portland Cement Association
PCB	Polychlorinated Biphenyl
PCI	Precast/Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PI	Perlite Institute
PS	Product Standard of United States Department of Commerce
RCRA	Resource Conservation & Recovery Act
RCSC	Research Council on Structural Connection
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
RUS	U.S. Department of Agriculture, Rural Utilities Service
SJVAPCD	San Joaquin Valley Air Pollution Control District
SAE	Society of Automotive Engineers
SBC	State Building Code
SBS	State Building Standards Electrical Code, Title 24, Part 3
SCS	Scientific Certification Systems
SDI	Steel Door Institute
SFM	State of California, Office of State Fire Marshal
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal & Air Conditioning Contractors' National Association, Inc.
SPIB	Southern Pine Inspection Bureau (Grading Rules)
SPR	Simplified Practice Recommendation
SSPC	Society for Protective Coatings
STC	Sound Transmission Coefficient
SWI	Sealant and Waterproofers Institute

SWPPP	Storm Water Pollution Prevention Plan
TCA	Tile Council of America, Inc.
TIA	Telecommunications Industry Association
UBC	Uniform Building Code
UCM	University of California Merced
UCMFM	University of California Merced Facilities Management
UFAS	Uniform Federal Accessibility Standards
UHMW	Ultra-High Molecular Weight
UL	Underwriters' Laboratories, Inc.
USA	Underground Service Alert
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGBC	United States Green Building Council
USS	United States Standards
USSG	United States Steel Gauge
WAPA	Western Area Power Authority
WCLIB	West Coast Lumber Inspection Bureau
WH	Warnock Hersey
WIC	Woodwork Institute of California
WLPDIA	Western Lath/Plaster/Drywall Industries Association
WRSI	Western Concrete Reinforcing Steel Institute
WWPA	Western Wood Products Association
WWPOA	Western Wood Preserving Operators Association
WWTP	Waste Water Treatment Plant

B. Additional abbreviations, used on the Drawings, are listed thereon.

## 1.2 SYMBOLS

A. Symbols, used only on the Drawings, are shown thereon.

## 1.3 DEFINITIONS

A. The following terms, when used on the Drawings or in the Specifications, shall have the following meanings:

1. AS DIRECTED - "As directed by the University's Representative."
2. AS REQUIRED - "As required by Applicable Code Requirements; by good building practice; by the condition prevailing; by the Contract."
3. AS SELECTED - "As selected by the University's Representative."
4. BY OTHERS - Work on this Project that is outside the scope of Work to be performed by the Contractor under this Contract, but that will be performed by the University, Separate Contractors, or other means.
5. EQUAL - Of same quality, appearance, and utility to that specified, as determined by the University's Representative. The Contractor bears the burden of proof of quality.
6. FABRICATED - Items specifically assembled or made out of selected materials to meet individual design requirements.

7. FURNISH - "Supply only, not install (unless required to be provided or installed elsewhere in the Contract Documents)."
8. INSTALL - "Install or apply only, not furnish."
9. MANUFACTURED – Applies to standard units usually mass-produced.
10. OFF SITE - Outside the Work area as shown on the Drawings or the property lines.
11. PROJECT SITE - Geographical location of the Project.
12. PROVIDE - "Furnish and install."
13. SHOWN - "As indicated on the Drawings."
14. SPECIFIED - "As written in the Contract Documents."
15. SUBMIT - "Submit to University's Representative."
16. OFCI - UNIVERSITY-FURNISHED, CONTRACTOR INSTALLED - "To be furnished by University and installed by Contractor as part of the Work. Scope of work includes receipt, off-loading, inspection, on-site storage of material and protection after installation until acceptance."

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 42 13

SECTION 01 43 39  
MOCK-UPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for full-size, physical assemblies that are constructed on-site or off-site as specified.
  - 1. Construct mock-ups of the following: Paint
  - 2. Design Concept: Mock-up is intended to permit verification of workmanship and visual qualities of the final completed installation.
  - 3. Mock-ups will be used:
    - a. To verify qualities of materials, and execution.
  - 4. Review requirements specified in other appropriate Sections for specific mock-ups and for materials, methods, and additional sample submittal requirements.
  - 5. Accepted mock-up shall be used as a visual standard for the final installation.
- B. Related work not included in this section:
  - 1. First-install mock-ups for products, systems, and finishes as specified in individual technical specification sections, which will become part of the completed Work.
- C. Typical Sections that may require mock-ups may include, but are not limited to, the following:
  - 1. Paint
  - 2. Carpet @ Thread
  - 3. Aluminum Storefront
  - 4. Additional Sections as required for completion of mock-ups as specified or as shown on the Drawings.

1.2 REFERENCES

- A. The publications listed below form a part of this Section to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. Unless otherwise noted, standards, manuals, and codes refer to the latest edition of such standards, manuals, and codes as of the date of issue of this Project Manual.
- C. Referenced Standards:

1.3 DESCRIPTION OF MOCK-UPS

1.4 GENERAL REQUIREMENTS FOR MOCK-UPS

- A. Maintain quality control over Work of various Section of Specifications, manufacturers, products, services, workmanship, and site conditions to produce mock-ups in accordance with the Contract Documents.
- B. Pre-Installation Conference
  - 1. Conduct pre-installation conference in accordance with Section 01 31 19 "Project Meetings."
  - 2. Convene pre-installation conference at least one week prior to commencing work on Mock-ups.
- C. Workmanship:
  - 1. Comply with standards specified in technical specification sections.
  - 2. Provide qualified personnel to produce mock-up of specified quality.
    - a. Use products, materials, finishes, fabrication methods, details, anchorage system, and construction methods identical with those required for the Work.
    - b. Use supervisor who will be involved in the actual construction.
  - 3. Provide finish to match approved samples.
- D. Assemble and erect complete, with specified attachment and anchorage devices, flashings, seals and finishes.
  - 1. Anchorage and assembly shall conform to code requirements for seismic stability.
  - 2. Include, as part of the mock-up, required shoring and bracing to support mock-up.
  - 3. Coordinate mock-up construction with delivery and assembly of related materials and components to be included in each mock-up.
- E. Make necessary additions and modifications to the details shown on the Drawings as may be required to comply with specified performance requirements while maintaining the design concept.

1.5 SUBMITTALS

- A. General: Review all Sections.
- B. Product data and samples for each component part of the exterior enclosure assembly as specified in each technical specification.
- C. Mock-up shop drawing: Submit detailed shop and erection drawings of component exterior enclosure assembly. Drawing shall include all large scale details for all components required for each composite exterior enclosure assembly mock-up, required supports, joint anchor assembly, sealant application, water collection and drainage systems, anchorage, and other required work to complete composite mock-up.



## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Except as otherwise specified, materials for mock-up shall be as shown and specified in the respective Specification Sections.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine site and area to receive mock-up and conditions under which mock-ups are to be constructed. Correct any deficiencies.

### 3.2 REVIEW AND ACCEPTANCE

- A. Upon completion of mock-up construction, notify University's Representative and make arrangements for review.
- B. Acceptable mock-ups shall become the standard of quality for the Work, as approved by University's Representative. Establish and document quality control standards for materials, fabrication, assembly and erection, including finishes, tolerances, sealant colors, and sealant applications.
- C. Maintain mock-ups in neat, clean, and "as-accepted" conditions.
- D. Mock-ups shall be completed and shall be approved by the University's Representative in writing, prior to commencing with Work.
- E. Modify the mock-ups, or construct new components if requested by the University's Representative, for further evaluation and until final acceptance is obtained.

### 3.3 AS-BUILT DRAWINGS

- A. Once mock-up testing is complete, provide As-Built Drawings documenting all deviations from the approved Shop Drawings and Construction Documents.

### 3.4 COMPLETION

- A. The mock-up must be approved in writing by the University's Representative prior to commencement of the Work.
- B. The mock-up may be rejected if the quality is inadequate or if it does not meet the intent of the Construction Documents. In the event that the mock-up is rejected, remove and replace it.

- C. Retain and maintain final approved mock-up during construction in an undisturbed condition as a standard for judging the completed Work.
- D. Except as otherwise specified, remove at no additional cost to the University, free-standing mock-ups which are not to be permanent prior to completion of Project but not before the work they are being used to judge has been accepted by the University's Representative.

END OF SECTION 01 43 39

SECTION 01 43 40  
EXTERIOR ENCLOSURE PERFORMANCE REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. The intent of this section is to ensure coordination of the exterior framing system shop drawings combined with the information from the curtain wall and aluminum-framed entrances and storefronts shop drawings such that all conditions, whether detailed or not in the Contract Documents, are thoroughly coordinated and developed. The outcome of this section will be a successfully coordinated Integrated Shop Drawing for the exterior enclosure system. This section includes exterior enclosure performance requirements which consists of components specified in the following sections:

1. Division 01 Section "Mockups"
2. Division 05 Section "Cold-Formed Metal Framing."
3. Division 05 Section "Decorative Metal."
4. Division 07 Section "Modified Bituminous Sheet Air Barriers."
5. Division 07 Section "Self-Adhering Sheet Waterproofing."
6. Division 07 Section "Metal Wall Panels."
7. Division 07 Section "Hot Fluid-Applied Rubberized Asphalt Waterproofing."
8. Division 07 Section "Water Repellents."
9. Division 07 Section "PVC Roofing."
10. Division 07 Section "Roof Accessories."
11. Division 07 Section "Sheet Metal Flashing and Trim."
12. Division 07 Section "Joint Sealants."
13. Division 08 Section "Aluminum-Framed Entrances and Storefronts."
14. Division 08 Section "Unit Skylights."
15. Division 08 Section "Glazing."
16. Division 08 Section "Glazed Aluminum Curtain Walls."
17. Division 09 Section "Insulated Plaster System."

1.2 REFERENCES

A. Published specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work of this Section where cited by abbreviations noted below.

1. ASTM International (ASTM).

2. American Architectural Manufacturers Association's "Field Check of Metal Curtain Walls for Water Leakage" (AAMA 501.2).
3. American Society of Civil Engineer's "Minimum Design Loads for Buildings and Other Structures" (ASCE/SEI 7-05).
4. California Building Code, 2007 Edition (CBC).

### 1.3 ENGINEERING DESIGN RESPONSIBILITY

- A. The Exterior Enclosure requirements shown by the details are intended to establish basic dimensions of units or modules, profiles and sight lines of members. Within these limitations, the Contractor is responsible for the engineering design of their work, and to make modifications of, and additions to the details as may be required to fulfill the performance requirements. The Contractor shall maintain the visual design concept as shown, including member sizes, profiles and alignment of components, provided they meet performance requirements. To ensure coordination, the Contractor shall provide their exterior framing system shop drawings combined with the information from the curtain wall and aluminum-framed entrances and storefronts shop drawings.
- B. It is recognized that the design details do not cover some conditions or modifications, which may be required. It is, however, intended that conditions not detailed shall be developed through the Contractor's Shop Drawings to the same level of aesthetics and in compliance with performance criteria as indicated for detailed areas and as stipulated in these specifications. The Contractor, by accepting a contract for the work, acknowledges this and agrees that University's Representative shall have the final say as to all matters whether detailed or not in the design details.
- C. Review of shop drawings by University's Representative will not relieve Contractor of any responsibilities for providing a system with the required performance requirements.
- D. Contractor is responsible for the strength and serviceability of Exterior Enclosure Systems, support framing, related hardware, and connections to the building.
- E. Incorporate changes resulting from review of Composite Exterior Enclosure Assembly Mock-Up specified in Division 01, Section "Mockups".
- F. Incorporate changes resulting from testing of Composite Exterior Enclosure Assembly Mock-Up specified in Division 01, Section "Mockups".

### 1.4 SYSTEM DESCRIPTION

- A. Refer to Exterior Enclosure System component sections for system descriptions specific to individual components.

### 1.5 SUBMITTALS

- A. All individual components of the exterior enclosure system shall have approved submittals and shop drawings prior to issuance of the Integrated Shop Drawings.

- B. List of Exterior Enclosure System Work Suppliers: Before submission of Shop Drawings or Samples, submit a complete listing of products, manufacturers, and fabricators for the principal Exterior Enclosure System work components. Approval of listed firms and products by University's Representative will be tentative, subject to review of subsequent submittals.
- C. Schedule:
1. Prepare a proposed schedule covering the complete Exterior Enclosure System work from initial submittal to erection of last Exterior Enclosure System element including mock-ups.
  2. Consider the nature and complexity of each submittal item and allow ample time for review, revision, correction, resubmittal, and approval sufficiently in advance of the construction requirements.
  3. Proposed schedule is to be submitted for review within thirty (30) days of the Notice to Proceed.
  4. Base proposed schedule upon the specific anticipated direction and sequence of construction operations.
  5. Coordinate proposed schedule with all involved and interfacing trades and operations.
  6. Coordinate the submittal process to help insure an orderly and timely review of submittals in the proposed construction sequence.
  7. Designate work progress areas and sequence for the information of all involved trades and University's Representative. Determine size of work progress areas to optimize preparation, submittals and review of shop drawings.
  8. Submit final production Shop Drawings after approval of architectural mock-up and completion of mock-up testing.
  9. Submit final erection Shop Drawings after approval production Shop Drawings.
- D. Integrated Shop Drawings:
1. Prepare one set of Integrated Shop Drawings for all Exterior Enclosure System components. Separate Shop Drawings for each Exterior Enclosure System components will not be acceptable.
  2. Include additional information as specified in Exterior Enclosure System component sections.
  3. Shop drawings consists of both production and erection drawings.
  4. Make submittals as soon as practical. Shop Drawings for mating of adjacent work pieces or elements shall be submitted together to allow concurrent review. Where submittals are not so coordinated, review time may be extended pending receipt of shop drawings for mating of interrelated pieces.
  5. Production Drawings:
    - a. Prior to fabrication, submit complete production drawings for the fabrication of Exterior Enclosure System components.
    - b. Show complete elevations, layouts, dimensions, sections, details and finishes of each Exterior Enclosure System component and element and identified with a

- number that will be marked on an unexposed surface for identification during erection.
  - c. Show that each Exterior Enclosure System component has received prior approval of Exterior Enclosure System erector, and the manufacturer or fabricator of each Exterior Enclosure System components.
  - d. Drawings to indicate in detail all parts of each Exterior Enclosure System component including elevations, full-size sections, jointing, interfaces, periphery conditions, types and thickness of metal, flashing and details, field connection, weep and drainage system, finishes, sealing methods, glazing and glass sizes and details.
  - e. Show relation to adjoining work, joint treatment, and items to be installed in the work of other trades.
6. Erection Drawings
- a. Show building plans and elevations locating elements. Identify each Exterior Enclosure System component and element with same identification number used in production drawings.
  - b. Include sections and details showing support framing connections to structural clips, cast-in items and their relation to the structure.
  - c. Include field installed anchor location drawings.
  - d. Description of all loose, cast-in and field hardware.
  - e. Erection sequence, installation procedures and handling requirements.

## 1.6 QUALITY ASSURANCE

- A. The Contractor shall engage qualified Subcontractor to provide Exterior Enclosure System which consists of the following components:
- 1. Glazed aluminum curtain wall systems and windows specified in Division 08 Section "Glazed Aluminum Curtain Walls."
  - 2. Entrances and storefronts specified in Division 08 Section "Aluminum-Framed Entrances and Storefronts."
  - 3. Decorative metal specified in Division 05 Section "Decorative Metal", and metal wall panels specified in Division 07 Section "Metal Wall Panels."
  - 4. Hot fluid-applied rubberized asphalt waterproofing specified in Division 07 Section "Hot Fluid-Applied Rubberized Asphalt Waterproofing."
  - 5. Water repellents specified in Division 07 Section "Water Repellents."
  - 6. Insulated Plaster System specified in Division 09, Section "Insulated Plaster System."
  - 7. Exterior wall system as specified in Division 05, Section "Cold-Formed Metal Framing", Division 07, Section "Self-Adhering Sheet Waterproofing", Division 07 "Modified Bituminous Sheet Air Barriers", and Division 07 Section "Sheet Metal Flashing and Trim."
  - 8. PVC roofing specified in Division 07 Section "PVC Roofing", roof accessories specified in Division 07 Section "Roof Accessories" and unit skylights specified in Division 08 Section "Unit Skylights."

9. Sealant systems as required for exterior enclosure system components as specified with each system and in Division 07, Section "Joint Sealants.
  10. Glass and glazing as required for exterior enclosure system components as specified in Division 08, Section "Glazing."
  11. Composite exterior enclosure assembly mockups as specified in Division 01, Section "Mockups."
  12. On site performance testing of composite mockups as specified in Division 01, Section "Mockups."
- B. Contractor's Qualifications: Approval by University's Representative is required of proposed manufacturers and will be based upon submission by Contractor of certification that:
1. Contractor shall have responsibility for coordination of the Exterior Enclosure System with the work of Subcontractors including Aluminum Curtainwall, Aluminum Storefronts, Metal Stud Framing, Plaster, Decorative Metal and Metal Wall Panels..
- C. Glass Manufacturer's Review: Glass manufacturer shall review shop drawings and verify that proper glass usages and installations are being used.
- D. Composite Exterior Enclosure Assembly Mockup: Provide exterior enclosure system component elements as required for the construction and testing of composite exterior wall mockups specified in Division 01, Section "Mockups."
- E. Composite Exterior Enclosure Assembly Mockup Testing: Perform testing for composite exterior wall mockups as specified in Division 01, Section "Mockups."
- F. Required Conferences:
1. Conferences: General Contractor to attend weekly meetings to be held at University's Representative's office.
  2. Contractor-Manufacturer Review: Contractor shall review the drawings and specifications with agent of sheet membrane underlayment materials manufacturer and obtain manufacturer's agreement that selected systems are proper, compatible, and adequate for application shown and that conditions and details do not conflict with a manufacturer's warranty/guaranty.
  3. Pre-Erection Conference:
    - a. Contractor shall arrange conference to review Exterior Enclosure System work prior to actual installation.
    - b. Conference to be attended by University's Representative, University's Inspection Agency, Exterior Enclosure System component Subcontractors, and manufacturer glass and glazing materials manufacturer, and others whose work may be affected by Exterior Enclosure System work.
    - c. Contractor to provide at least one week's advance notice of conference date and time.
    - d. The conference shall be held at the job site.
    - e. The following major considerations shall be reviewed at the conference:

- 1) Review in detail the Contract specifications, details, and other related work.
- 2) Review in detail job conditions, schedule, construction sequence, erection requirements, and quality of completed installation.
- 3) Review methods for delivering, storing and handling glass.
- 4) Review methods for installing glass and glazing materials.
- 5) Review in detail the means of protecting completed work during remainder of construction period.
- 6) Chemical compatibility of all glazing materials and framing sealant with each other and with like materials used in glass fabrications shall be established.
- 7) Record discussions of conference and any conflict, incompatibility, or inadequacy, and furnish a copy of record to each participant.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, storage, and handling requirements are specified in Exterior Enclosure System component sections.

#### 1.8 PROJECT CONDITIONS

- A. Project condition requirements are specified in Exterior Enclosure System component sections.

#### 1.9 SEQUENCING

- A. Coordinate installation with that of adjacent work to ensure watertightness, proper attachment, sealed joints, and clean junctions.

### PART 2 - PRODUCTS

#### 2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Refer to Division 01 Section "Product Options and Substitutions."

#### 2.2 EXTERIOR ENCLOSURE SYSTEM COMPONENTS

- A. Refer to individual exterior enclosure system component technical specification sections.

#### 2.3 MATERIALS

- A. Refer to individual exterior enclosure system component technical specification sections.

#### 2.4 FABRICATION

- A. Refer to individual exterior enclosure system component technical specification sections.



## 2.5 FINISHES

- A. Refer to individual exterior enclosure system component technical specification sections.

## 2.6 SOURCE QUALITY CONTROL

- A. University's Representative may spot check Exterior Enclosure Systems components at any time during their fabrication. Inspection of Exterior Enclosure Systems components during fabrication does not imply University's Representative's approval and does not relieve Contractor of providing Exterior Enclosure Systems components complying with specification requirements. Final approval will not be considered until after erection and cleaning of Exterior Enclosure Systems components.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Contractor must examine substrates, adjoining construction, and conditions under which work is to be installed. Examine openings to Exterior Enclosure System and verify that openings are plumb, level, clean, in full accord with Contract Documents and provide solid anchoring surface.
- B. Do not proceed with the Work until unsatisfactory conditions detrimental to the proper and timely completion of the Work have been corrected in a manner acceptable to General Contractor.

### 3.2 PREPARATION

- A. Make certain supporting structural work is secure and properly aligns and prepared to receive exterior enclosure system. Correct any deficiencies prior to installation panels.
- B. Verify dimensions of supporting structure by accurate field measurements so that Exterior Enclosure System work will be accurately designed, fabricated, and fitted to the structure. Tolerances for supporting structure are specified in other sections. Verify any dimensions found to be different than shown, including specified tolerances. Use benchmarks as basis of measurements.
- C. Coordinate exterior enclosure system work with the work of other trades and provide items to be placed during the installation of other work at the proper time to avoid delays in the work. Place such items, including inserts and anchor, accurately in relation to the final location of curtain wall components.
- D. Inspect each unit of glass immediately before installation. Glass which had significant impact damage at edges, scratches, or abrasion of faces, or any other evidences of damage shall not be installed.
- E. Provide templates for inserts and other devices to the work of other trades, in sufficient time to be built into adjoining construction.

### 3.3 INSTALLATION

- A. Refer to individual exterior enclosure system component technical specification sections.

### 3.4 FIELD QUALITY CONTROL

- A. Water Penetration Tests:
  - 1. After completion of the installation and nominal curing of sealants and glazing compound, and before installation of interior trim members and heating unit covers, test for water leaks in accordance with AAMA 501.2.
  - 2. Conduct tests in the presence of University's Representative, who will determine the actual percentage of wall area to be tested based upon any indication of leakage (or lack thereof).
  - 3. Repair or replace any components, including joints and sealants, which leak or are observed to be defective in any way, and retest as directed.

### 3.5 PROTECTION AND CLEANING

- A. After completion of glazing and finish painting of surrounding surfaces clean exterior enclosure system as recommended by manufacturer and for aluminum work.
- B. In addition to specific protection and cleaning methods recommended by manufacturers of each component part, maintain the exterior enclosure system and components throughout the construction period in a clean and properly protected condition so that it will be without any indication of use or damage at the time of Substantial Completion.
- C. Cleaning and protective methods shall be carefully selected, applied and maintained so that finishes will not become uneven or otherwise impaired as a result of unequal exposure to light and weathering conditions.
- D. Provide board protection at ground level work and near construction chutes and lifts.
- E. Temporary coverings, provided at Contractor's option to protect the work during erection and construction, shall avoid development of non-uniformity or other deleterious effects in the work.
- F. Remove protection when requested by University's Representative for inspection of finishes, and replace.
- G. Remove protection when no longer required.
- H. Remove mastic smears, mortar, plaster, fireproofing, and any other deleterious material from surfaces of aluminum immediately.

### 3.6 DEFECTIVE WORK

- A. Remove exterior enclosure system work deemed defective by University's Representative and replace with new components.

- B. Restore to original condition work of other sections damaged in repair or replacement of defective work.

3.7 INSTRUCTION

- A. Instruct University's personnel who will be responsible for window washing after the time of final acceptance. Demonstrate and train University's personnel, for a period of not less than two working days, in the proper methods of cleaning and maintaining the entire glazed aluminum curtain wall.

END OF SECTION 01 43 40

**SECTION 01 45 00**  
**QUALITY CONTROL**

PART 1 - GENERAL

1.1 DEFINITIONS

- A. The term "University's Testing Laboratory" means a testing laboratory retained and paid for by University for the purpose of reviewing material and product reports and performing other services as determined by the University.
- B. The term "Contractor's Testing Laboratory" means a testing laboratory retained and paid for by Contractor to perform the testing services required by the Contract Documents. Contractor's Testing Laboratory shall be an organization other than University's Testing Laboratory and shall be acceptable to the University's Representative. It may be a commercial testing organization, the testing laboratory of a trade association, the certified laboratory of a supplier or manufacturer, Contractor's own forces, or other organization. Contractor's Testing Laboratory shall have performed testing of the type specified for at least 5 years.
- C. The term "Geotechnical Engineer" means an engineer retained and paid for by the University for the purpose of performing geotechnical inspection, testing, and observation functions specified by the University.

1.2 CONTRACTOR'S RESPONSIBILITIES REGARDING UNIVERSITY'S TESTING LABORATORY

- A. Secure and deliver to University's Testing Laboratory adequate quantities of representative samples of materials proposed for use as specified.
- B. Submit a copy of the preliminary design mixes proposed to be used for concrete and other materials that require review by University's Testing Laboratory to the University Representative. University Representative will submit the copy to the University's Testing Laboratory for review.
- C. Submit copies of product test reports as specified.
- D. Furnish incidental labor and facilities:
  - 1. To provide University's Testing Laboratory access to the Work to be tested.
  - 2. To obtain and handle samples at the Project site or at the source of the product to be tested.
  - 3. To facilitate inspections and tests.
  - 4. For storage and curing of test samples.
- E. Provide a minimum of forty-eight hours notice to University's Representative to allow for University's Testing Laboratory assignment of personnel and scheduling of tests.
- F. When material or work to be tested or inspected is not available for testing or inspection, even though notice has been given under Subsection 1.2.E above, Contractor shall

reimburse University for University's Testing Laboratory personnel and travel expenses incurred.

### 1.3 TESTS AND INSPECTIONS

- A. Tests, inspections, and acceptance of portions of the Work required by the Contract Documents or by Applicable Code Requirements shall be made at the appropriate times. Except as otherwise provided, Contractor shall make arrangements for such tests, inspections, and acceptances with Contractor's Testing Laboratory. Contractor shall give the University's Representative a minimum of twenty-four hours written notice of when and where tests and inspections are to be made.
- B. If such procedures for testing, inspection, or acceptance reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the University's Representative's services and expenses.
- C. If the University's Representative is to observe tests, inspections, or make acceptances required by the Contract Documents, University's Representative will do so promptly and, where practicable, at the normal place of testing.
- D. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.
- E. Certain portions of the Work will be tested and/or inspected at various stages. Nothing in any prior acceptance or satisfactory test result shall govern, if at any subsequent time the Work, or portion thereof, is found not to conform to the requirements of the Contract Documents.

### 1.4 ADDITIONAL TESTING AND INSPECTION

- A. If initial tests or inspections made by University's Testing Laboratory or Geotechnical Engineer reveal that any portion of the Work does not comply with the Contract Documents, or if the University's Representative determines that any portion of the Work requires additional testing or inspection, additional tests and inspections shall be made as directed.
  - 1. If such additional tests or inspections establish that such portion of the Work complies with the Contract Documents, all costs of such additional tests or inspections shall be paid by the University.
  - 2. If such additional tests or inspections establish that such portion of the Work fails to comply with the Contract Documents, all costs of such additional tests and inspections, and all other costs resulting from such failure, including compensation for the University's Representative and the University's consultants, shall be deducted from the Contract Sum.

#### 1.5 TEST REPORTS

- A. University's Testing Laboratory and General Contractor's Testing Laboratory shall submit 1 copy of all reports to University's Representative, indicating observations and results of tests and indicating compliance or non-compliance with the Contract Documents.
- B. The University's Representative shall distribute to the Contractor one copy of the reports from the University's Testing Laboratory.
- C. The number of copies for the Contractor and supplier being tested will be determined upon commencement of the Contract.

#### 1.6 CLOSING IN UNINSPECTED WORK

- A. Do not allow or cause Work to be covered or enclosed before it has been inspected and approved by the University's Representative. Should any Work be enclosed or covered before it has been approved, it shall be uncovered, inspected, approved or repaired, and covered. Make all repairs necessary to restore Work of others to the condition in which it was found at time of cutting, at no additional cost to the University.

#### 1.7 GEOTECHNICAL ENGINEER

- A. All excavation, filling, and compaction shall be subject to inspection, observation, and testing by Geotechnical Engineer. The University will retain and pay expenses of the Geotechnical Engineer to perform the inspection, testing, and observation functions described in this Section, except that the costs of any additional testing or inspection made necessary by inadequate compaction, replacement of unacceptable material or other Work not complying with the Contract Documents shall be borne by the Contractor and may be deducted from the Contract Sum. The Geotechnical Engineer shall communicate with the University's Representative who will relay any appropriate instructions to the Contractor.
- B. Source Quality Control: Geotechnical Engineer will sample and test fill material from the source designated by the Contractor. Contractor shall pay for the Geotechnical Engineer's transportation expenses, if the source is more than 50 miles from the Project site.

#### 1.8 JOB CONDITIONS

- A. Contractor shall visit the Project site to determine the existing conditions, nature of materials to be encountered and other facts concerning or affecting the Work to be performed under this Contract.
- B. The records of investigation of soil or subsurface conditions and logs of test borings that are made available by the University are not part of the Contract and are solely for the convenience of the Bidder or Contractor. It is expressly understood and agreed that the University assumes no responsibility whatsoever in respect to the sufficiency or accuracy of the investigation thus made, the records thereof, or of the interpretations set forth therein, and there is no warranty or guaranty, either express or implied, that the conditions indicated by such investigations or records are representative of those existing throughout such areas or any part thereof, or that unanticipated for developments may not occur, or that materials other than, or in proportions different from those indicated, may not be encountered.

- C. The availability or use of the records of investigations of soil or subsurface conditions and/or logs of test borings shall not be construed as a waiver of the Contractor's duty to examine the Project site of the Work contemplated. Contractor is cautioned to make such independent investigations and examinations as necessary to satisfy the Contractor of subsurface conditions to be encountered in the performance of the Work.
- D. The records of investigations will not relieve Contractor from the risk of unanticipated soil or subsurface conditions or from properly fulfilling the terms of the Contract at the Contract Sum.
- E. Contractor shall promptly, and before such condition is disturbed, notify the University's Representative in writing if soil or subsurface conditions are encountered which require, in the opinion of the University's Representative, design details which differ from those design details shown in the Contract Documents and the University's Representative finds that such revised, design details will cause an increase or decrease in the cost of, or the time required for performance of the Contract, the University's Representative will, after approval by the University, modify the Contract terms in writing to provide for the change in design details and to provide for an adjustment in cost and/or time of performance as permitted in the General Conditions.

#### 1.9 RESPONSIBILITY FOR ACCURACY OF SITE DATA

- A. Upon application to the University to do so, the Contractor will be permitted to enter the Project site to put down test holes or trenches to determine the conditions for construction prior to bidding, and subject to compliance with the requirements of Division 1. Such test holes or trenches shall be located at least 10 feet clear of any existing foundations, and/or any existing trees, utilities, or other improvements. Test holes shall be backfilled with granular backfill as specified. The test holes shall be kept full of water during backfilling; the backfill shall be hand shoveled into the hole so that it is completely dispersed and "puddled" as placed. Drill cuttings shall be neatly piled over the hole after backfilling. Material to be excavated is assumed to be earth or other materials that can be removed by power earth moving equipment, including rippers.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 45 00

**SECTION 01 51 00  
TEMPORARY UTILITIES**

**PART 1 - GENERAL**

**1.1 REQUIREMENTS**

- A. Contractor shall provide and maintain temporary utilities for construction operations and related necessary temporary structures. Remove them when they are no longer needed.
- B. Contractor shall pay for connections/disconnections of all temporary utilities; e.g., gas, water, power, and telephone.
- C. Contractor shall pay for connections for water and electricity to Project site sources.
- D. University does not guarantee amounts of water and electricity available from existing University's sources, nor will the University be responsible for interruptions in service.
- E. Contractor shall maintain and operate systems to provide continuous service.
- F. Contractor shall modify and extend systems as required.
- G. Materials may be new or used, but shall be adequate for the required purposes. Their use and methods of installation shall not create unsafe conditions or violate requirements of Applicable Codes Requirements.

**1.2 REMOVAL AND RECONDITIONING**

- A. Contractor shall remove all temporary services installed as a requirement of these Contract Documents. Restore utilities to their original condition at the completion of Work.
- B. Contractor shall legally and properly dispose of all debris resulting from removal and reconditioning operations.
- C. Contractor shall direct Concrete, Drywall and Painting Subcontractors to patch and repair building elements as required by temporary utility removals.

**1.3 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Contractor shall install and use temporary utilities in accordance with latest version of the following:
  - 1. California Electrical Code.
  - 2. Federal, State, and local codes and regulations.
  - 3. Utility company requirements.

**1.4 TEMPORARY ELECTRICITY**

- A. University will not provide electricity free of charge. Contractor shall make connections to temporary power in coordination with University Representative, and make account arrangements directly with PG&E for that temporary power service. When the temporary



power connection is switched over to the University's electrical service the Contractor shall meter their temporary electricity use and will be charged based on average UC Merced rates.

- B. Refer to Instructions to Bidders for temporary electrical scope of work and Contractor's responsibility.

#### 1.5 TEMPORARY FIRE PROTECTION

- A. Contractors shall conform to the rules, regulations, and instructions of the University and the Merced County Fire Department and such agencies having jurisdiction or identified by the University's Representative. The Contractor shall:
  - 1. Ensure that no burning shall be done on Project site.
  - 2. Provide and maintain fire protection equipment including extinguishers, fire hoses, and other equipment as necessary for proper fire protection during the course of the Work.
  - 3. Use fire protection equipment only for extinguishing fires.
  - 4. Locate fire extinguishers in field offices, storage sheds, tool houses, other temporary buildings, and throughout the Project site.
- B. In the area under construction demolition, the Contractor will provide at least 1 multi-purpose dry chemical fire extinguisher for each 3,000-square feet of building floor area. Locate fire extinguishers so that a person never has to walk more than 75 feet to obtain one. Fire extinguisher minimum size must be 4A:20BC (10 pound ABC). Use fire protection equipment only for fighting fires. Any additional fire extinguishers required for the scope of work are to be provided by the General Contractor.
- C. Contractor shall assigned a qualified person with authority to maintain fire protection equipment, institute fire prevention measures, be a liaison with the University's Representative, Merced County Fire Department and such agencies having jurisdiction or identified by the University's Representative, and direct the prompt removal of combustible and waste materials from the Project site. Prior to start of Work, the Contractor shall organize a mandatory safety meeting. The attendees at this meeting shall at a minimum include the University's Representative, a representative of the Merced County Fire Department, the Contractor's Project Site Superintendent and the Contractor's Fire Liaison.
- D. Contractors shall instruct all subcontractors in the site fire prevention measures, the location of fire extinguishers and the procedures for dealing with fire on site.
- E. Call 9-1-1 and pull fire alarm box when applicable, for any emergency. Report the exact location (building name and street intersection) and nature of the emergency. The Contractor is responsible for and will be billed for fire response charges (actual cost of personnel and equipment) for any false alarm and needless call.
- F. Refer to Section 01 41 00 Regulatory Requirements for permits required.
- G. Vehicles or storage of materials on Project site must not obstruct, block or damage or render useless any fire hydrants, fire department connection, fire alarm box or fire access roadway.

Any necessary road closures or disruption to utilities shall be requested through the University's Representative as stated in Section 01 35 00 Special Requirements.

- H. Do not tamper with or work on any fire alarm or fire protection system without first gaining authorization from the University's Representative. System shutdown requests shall require a minimum of 48 hours advance notice. Contact University's Representative for any such requests.

#### 1.6 TEMPORARY HEAT, VENTILATION AND AIR CONDITIONING

- A. Contractor shall provide temporary heat and ventilation as required by the Instructions to Bidders and as required to maintain adequate environmental conditions to meet specified minimum conditions for installation of materials; and to protect equipment, materials, and finishes from damage due to temperature or humidity for all work. The use of temporary heating appliances will require a Hazardous Condition Permit as specified in Section 01 41 00 Regulatory Requirements.
- B. Contractor shall provide adequate forced ventilation of enclosed areas to cure installed materials, to prevent excessive humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases for their own work.

#### 1.7 TEMPORARY SANITARY FACILITIES

- A. Portable Chemical Toilets and maintenance will be provided by the Contractor.
- B. Permanent toilet facilities within an existing building shall not be used without written authorization of the University.

#### 1.8 TEMPORARY TELEPHONE SERVICE

- A. The Contractor shall provide a mobile radio system on-site at all times for effective University's Representative communications with the Contractor's field personnel. A radio will be provided to the University's Representative.

#### 1.9 TEMPORARY WATER

- A. University will not provide water free of charge. Contractor shall meter temporary water and will be charged based on average UC Merced rates.
- B. Water may be taken from University's systems in such quantities and at such times as they are available. If this is done, the Contractor using the water source shall provide all equipment, including metering, connections, and other materials necessary for extending the utility lines to where they will be used. Coordinate the installation with University's Representative. The Contractor shall pay for connections and removal of connections to the local water and power mains.
- C. If water is obtained from a campus fire hydrant, the hydrant valve shall not be used as a control valve. Use hydrant wrench; do not use pipe wrench. The Contractor using water source shall provide all valving necessary to control the flow of water.
- D. The Contractor shall:

1. Use a reduced pressure backflow preventer shall be used at any connection to University's system, including fire hydrants.
2. Install according to California Administrative Code, Title 17, Section 7603(c), and test immediately after installation by a certified tester in accordance with Title 17, CAC, Section 7605(d).
3. Install piping with taps located so that water is available throughout the Project site by the use of hoses. Protect piping and fittings against freezing.
4. Provide water for human consumption in accordance with the regulatory requirements for potable water.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 51 00

**SECTION 01 56 00**  
**TEMPORARY BARRIERS AND ENCLOSURES**

PART 1 - GENERAL

1.1 TEMPORARY FACILITIES

- A. Contractor shall provide and maintain the following temporary facilities as required for prosecution of the Contract:
1. All scaffolding, staging, runways, and similar equipment necessary to complete own work is to be provided by the responsible Contractor installing the said work.
  2. Temporary rigging, rubbish chutes, ladders between floors and similar equipment shall be provided by the Contractor requiring said work
  3. Barricades, lights and similar safety precautions shall be provided by the Contractor requiring said work.
  4. OSHA compliant guardrails at floor openings and building perimeter shall be provided as well as toe guards upon placement of concrete slabs, and the Contractor shall maintain the guardrails until they are no longer required at which time they will be removed from the project site.
  6. The Contractor shall erect and maintain a temporary OSHA compliant guardrail system around the storm drain and sanitary sewer excavations and shall remove it when directed by the University's Representative.
  7. All materials and equipment required to safely accomplish Work under this Section shall be in conformance with requirements of California Occupational Safety and Health act (COSHA), Chapter 5 of CalTrans Traffic Manual and other State and Federal Codes and regulations where applicable.
- B. Codes: All temporary Work and facilities shall conform to the above requirements that pertain to operation, safety and fire hazard.
- C. Removal: Upon completion of the Work, and before the final payment, the responsible Contractor shall remove all temporary Work and facilities to put the Project site in the condition required by the Contract Documents with no additional cost to the University.

1.2 TEMPORARY PROJECT CONSTRUCTION FENCE

- A. The Contractor shall not place any signs, advertisements, notices, or graphic materials on construction fencing that have not been approved in advance by University's Representative.
- B. Fencing shall be provided and maintained by Contractor.
- C. Contractor is responsible for any damage caused by Contractor's Operations.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 56 00

**SECTION 01 56 39**  
**TREE AND PLANT PROTECTION**

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The Contractor shall provide and maintain temporary fencing around all trees shown to be protected on the contract drawings. The Contractor shall assume responsibility for watering and maintaining these trees throughout the construction duration. The Contractor shall perform all work necessary and required to protect and maintain all trees, shrubs and turf within the limits of the Work in healthy growing condition at all times during the Project where own work is adjacent to trees, shrubs and turf. If during the course of construction, any adjacent trees or shrubs are damaged due to own work performed in said area, penalties will be assigned for tree injury which results in the decline or death of trees. The preservation of existing trees to remain is of great importance.
- B. Limit of Work: Refer to Drawings for limits of Work.
- C. Definitions
  - 1. "Injury" is defined, without limitation, as any bruising, scarring, tearing, or breaking of roots, branches, or trunk.
  - 2. "Tree protection zone" is defined for each species. Species tolerance to construction impacts and the tree's age determine the radius of the tree protection zone. The tree protection zone shall be 1.5 feet per inch trunk diameter unless otherwise noted by the University's Representative.
  - 3. "Existing tree" is defined as any or all of the existing trees to be preserved, as designated on the Drawings.
  - 4. "Consulting Arborist" is a certified arborist registered by the International Society of Arboriculture (ISA). The General Contractor shall submit Arborist's credentials for review by the University's Representative 14 calendar days prior to the Preconstruction Conference defined in Subsection 1.5. Consulting Arborist shall be supplied at the expense of the General Contractor.

1.2 STANDARDS

- A. Published specifications, standards, tests, or recommended methods of trades, industry, or governmental organizations apply to the Work of this Section. In addition, Contractor shall conduct operations in accordance with: Cabling, Bracing and Guying Standards for Shade Trees, latest revision, as published by the National Arborist Association (NAA), 174 RT 101, Bedford, New Hampshire 03102.

1.3 QUALITY ASSURANCE

- A. General Responsibility: The Contractor shall be directly responsible for protection and welfare of all existing trees within the limits of own Work area. This responsibility shall continue until the entire Project is completed and accepted by the University and through maintenance period.

#### 1.4 SITE CONDITIONS

- A. Protection: The Contractor shall become acquainted with all site conditions, and shall take necessary precautions to protect site conditions and permanent improvements. Damage caused by the Contractor shall be repaired or replaced to its original condition to the satisfaction of the University's Representative. Should utilities, grade changes, or other conditions not shown on the Drawings be found within the tree protection zone during the course of the Work, report to the University's Representative in writing, and obtain instruction prior to proceeding with the Work affected.
- B. Field-verify all dimensions, grades, and coordinates, which affect existing trees and plants. Indicate elevations at the base of all trees within the limits of the work on the grading plan. Report discrepancies to the University's Representative in writing, and obtain the University's Representative's instructions prior to proceeding with the Work affected.

#### 1.5 PRECONSTRUCTION CONFERENCE

- A. It shall be the responsibility of the Contractor to call for a meeting at the Project site with the University's Representative. Meeting attendees shall include the Contractor, University's Representative, Consulting Arborist, Engineers, and Architects. This meeting shall occur prior to start of construction of any nature within the protection zone of the trees.
- B. The purpose of the meeting shall be to establish the conditions of all existing trees upon receipt of the Project site by the Contractor. Failure to call for said meeting implies acceptance by the Contractor of existing trees in their existing condition.
- C. The University's Representative shall document the condition of the trees prior to this meeting. The purpose of the meeting shall be to confirm what work is to occur near the trees and to discuss mitigation of the potential impacts on trees to be preserved if necessary.

#### 1.6 REPAIR AND COMPENSATION

- A. Any damage to existing tree trunks, limbs or roots over 2 inches in diameter shall be immediately reported in writing to the University's Representative and, at the direction of the University's Representative, repaired immediately at the Contractor's expense by the approved Consulting Arborist.
- B. The Consulting Arborist shall direct repair of trees damaged by construction operations. Repairs shall be made promptly after damage occurs to prevent progressive deterioration of damaged trees.
- C. The Contractor shall compensate the University for any tree or shrub to remain which is damaged or destroyed owing to the Contractor's failure to provide adequate protection. Said compensation will be assessed by the University's Representative using the following schedule of values using the "tree caliper" method (greatest trunk diameter, measured 30 inches above ground):
  - 1. For trees and shrubs with diameters up to and including 4 inches, compensation shall be the actual cost of replacement with item similar in species, size, and shape, including:

- a. Actual cost of item boxed out of ground.
  - b. Transportation and delivery of boxed item to Project site.
  - c. Planting and staking.
  - d. Maintenance, including watering, fertilizing, pruning, pest control, and other care for a period of 90 calendar days to the satisfaction of the University's Representative.
2. For trunks up to:
    - a. Twelve inches - \$7,200
    - b. Thirteen inches - \$8,200
    - c. Fourteen inches - \$9,200
    - d. Fifteen inches - \$10,000
    - e. Sixteen inches - \$11,500
    - f. Seventeen inches - \$12,000
    - g. Add \$1,200 for each caliper inch or partial caliper inch over seventeen inches.
  3. A penalty shall be assessed for limb damage of \$200 per inch of limb diameter for any limb greater than 2 inches in diameter, measured where the limb should be pruned in order to make a proper thinning cut.
  4. A penalty will be assessed of \$20 per square inch of tree trunk area damaged. This penalty shall be assessed when it is determined that the General Contractor is responsible for damage to a tree trunk, but the tree is still healthy enough to remain at the site. An example of this kind of damage would be the collision of a tractor with the trunk of a mature tree where the bark is peeled back, and the damaged area will require repair and healing.
- D. Damaged tree limbs or trees that have died as a result of injury during construction shall remain the property of the University and shall remain or be removed by the General Contractor as directed by the University's Representative.

#### 1.7 WARRANTY OF REPLACEMENT PLANT MATERIAL

- A. Contractor shall warrant that all plants covered by the provisions of this Section will be healthy and in flourishing condition of active growth 1 year from the date of Final Acceptance.

#### 1.8 MAINTENANCE DURING CONSTRUCTION

- A. Maintenance includes, but is not limited to mitigation of damage due to storm drainage, or any condition, which requires immediate attention, and proper placement & maintenance of Tree Protection Fencing. Unauthorized moving of fencing which leads to damage of plant material may be subject to charges incurred by the Contractor. If the Contractor fails to perform routine maintenance, the cost of labor or a maintenance crew shall be paid by the Contractor.
- B. The Contractor shall perform periodic inspections of existing trees to be preserved and submit written proposals to the University's Representative for additional maintenance Work as may be required to ensure the health and general well being of the plant material. The Contractor shall retain, at the direction of the University's Representative, additional specialists as may be required to perform this Work.

- C. Irrigation: Following co-ordination with the University's Representative, existing trees to be preserved shall be given water to saturate the top 3 to 4 feet (as demonstrated by the soil probe) of the soil within the tree protection zone and 2 to 3 feet extending from the tree protection zone. Quantities, frequencies, and lengths of watering time are variable and shall depend upon seasonal rainfall. Irrigation recommendations of the University's Representative shall be followed.

#### 1.9 TREE PROTECTION FENCING

- A. Tree protection fencing shall be chain-link fencing (minimum 6-feet) on concrete anchor blocks unless otherwise noted.
- B. The Contractor shall install tree protection fencing around trees to be preserved at a distance required from the base of the trunk to the protection zone. All fencing shall remain until Project completion, and it shall then be removed only as directed by the University's Representative.
- C. During the course of construction, Contractor shall relocate the fence if required to facilitate construction only after notifying University's Representative, to avoid compaction or other injury of tree roots.
- D. The Contractor shall relocate the fence if required to facilitate construction to avoid compaction or other injury of tree roots only after notifying University's Representative.
- E. The Contractor shall protect the fencing and shall be responsible for any damage incurred to the fences requiring replacement or reinstallation.
- F. Approval of the University's Representative for Work within the fenced area shall not release Contractor from any of the provisions specified herein for the protection of existing trees.

#### 1.10 PLANT LIFE PROTECTION

- A. Protection: All trees, shrubs and turf not marked for removal shall be protected against damage from construction operations.
- B. Tree Protection:
  - 1. Where necessary in the opinion of the University's Representative, trees within the limits of the Work shall be protected with tree protection fencing. No trees shall be cut or felled without specific permission from the University's Representative. Trees cut or damaged without written permission of the University's Representative shall be subject to provisions of Repair and Compensation.
  - 2. Cutting and Pruning: Cutting and pruning of trees as required to accommodate construction shall be done only with the specific permission and direction of the University's Representative. Except as required by excavation or trenching shown on the Drawings, soil within the tree protection zone shall not be disturbed. University's Representative shall be notified immediately if roots of a diameter greater than 2 inches must be cut. Where trenching or excavation for utilities or new construction is required within tree protection zones, tunneling under and around roots shall be done by hand digging line-boring or vacuuming to minimize damage to the root systems.



3. Tree Protection Zone: Do not permit the following within the tree protection zone of an existing tree, except as specified in this Section:
  - a. Storage or parking automobiles or other vehicles.
  - b. Stockpiling of building material, refuse, or excavated materials.
  - c. Skinning or bruising of bark.
- C. Shrub and Turf Protection: Keep damage to shrubs, turf and other plant materials to a minimum and restore to original condition. Turf to be restored with sod lawn unless otherwise approved by the University's Representative.
- D. Maintenance: It shall be the responsibility of the General Contractor to maintain all plant materials and turf within the Project site in a healthy, thriving condition during the life of the Contract.

#### 1.11 GENERAL PROTECTION

- A. During the course of construction, take all necessary precautions to protect the existing trees from injury or death. Protection shall be given to the roots, trunk, limbs and foliage of all existing trees.
- B. Approval by the University's Representative for Work within the tree protection zone shall not waive the Contractor's responsibility for complying with the requirements of this Section.
- C. During the course of construction of approved Work within the tree protection zone, no roots larger than 2 inches in diameter shall be cut without prior written approval by the University's Representative.
- D. Do not permit the following within the tree protection zone of an existing tree, except as specified in this Section:
  1. Storage or parking automobiles or other vehicles.
  2. Stockpiling of building material, refuse, or excavated materials.
  3. Skinning or bruising of bark.
  4. Use of trees as support posts, power poles, or signposts; anchorage for ropes, guy wires, or power lines; or other similar functions.
  5. Dumping of poisonous materials on or around trees and roots. Such materials include but are not limited to paint, petroleum products, contaminated water, or other deleterious materials.
  6. Cutting of tree roots by utility trenching, foundation digging, placement of curbs and trenches, and other miscellaneous excavation without prior written approval by the University's Representative.
  7. Damage to trunk, limbs, or foliage caused by maneuvering vehicles or stacking material or equipment too close to the tree.
  8. Compaction of the root area by movement of trucks or grading machines, storage of equipment, gravel, earth fill, or construction supplies, etc.
  9. Excessive water or heat from equipment, utility line construction, or burning of trash under or near shrubs or trees.
  10. Damage to root system from flooding, erosion, and excessive wetting and drying resulting from dewatering and other operations.

11. Do not permit the use of herbicide, within the area of the tree protection zone without prior written approval from the University's Representative. The application of herbicides anywhere on the Project site to which can be attributed the decline or death of existing trees shall constitute negligence on the part of the Contractor. Contractor shall be liable for damages.
  12. During construction the existing site surface drainage patterns shall not be altered within the area of the tree protection zone, except as shown on the Drawings.
  13. Contractor shall not alter the existing water table within the area of the tree protection zone.
  14. Grading is to be avoided within the tree protection zone unless absolutely necessary. Grading techniques and mitigation procedures are to be specified by the University's Representative.
- E. All necessary measures shall be taken to maintain healthy living conditions for existing trees to be preserved. Such measures shall include but not be limited to periodic washing of leaves for the removal of dust, irrigation, etc.
- F. Excavation Around Trees
1. Excavation within tree protection zone of trees shall be done only where absolutely necessary and by, or at the direction and with approval from the University's Representative.
  2. Where trenching for utilities is required within tree protection zones, tunneling under and around roots shall be by hand digging. Main lateral roots, and taproots shall not be cut. Smaller roots that interfere with installation of new Work may be cut. Where appropriate, an underground method of pipe installation referred to as "line-boring", around sensitive roots, sidewalks and roads. Determination would be by the University's Representative as to when it would be appropriate to use this method.
  3. Where excavation for new construction is required within tree protection zone of trees, hand excavation and tunneling shall be employed to minimize damage to root systems. If large, main lateral roots are encountered, they shall be exposed beyond excavation limits. If encountered immediately adjacent to location of new construction and relocation is not practical, roots shall be cut approximately 6 inches back from new construction. Obtain approval from the University's Representative before cutting.
  4. Prior to excavation for drain line along existing sidewalk, tree roots shall be cut with a mechanical root-cutter rather than typical trenching to minimize root wrenching.
  5. Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be packed with wet peat moss or 4 layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill. The cover over the roots shall be wetted to the point of runoff so roots stay moist. This should be done at least daily during most seasons, but may required more frequent watering during the summer months. Excavations shall be closed within 24 hours; and, where this is not possible, the side of the excavation adjacent to the tree shall be kept shaded with burlap or canvas. No excavation shall occur within 10 feet of the trunk of any tree. Excavations within 20 feet of any tree shall be limited to that which is absolutely necessary for building construction under the supervision of the University's Representative.

6. Branching structure shall be thinned in accordance with NAA "Pruning Standards and Practices" to balance structural or weight balance problems in the crown of the tree that might lead to further damage. Thinning shall not exceed 30 percent of existing branching structure.

G. Backfilling

1. Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Jet backfill when trench has been backfilled to half its depth and again when fully backfilled, making certain no air pockets exist around roots.
2. Do not use mechanical equipment to compact backfill. There shall be no air tamping used to avoid compaction of tree root systems. Tamp carefully using hand tools, refilling and retamping until Final Acceptance as necessary to offset settlement.

1.12 TRIMMING OF TREES

- A. In company with the University's Representative ascertain the limbs and roots, which are to be trimmed, and clearly mark them to designate the approved point of cutting.
- B. A Consulting Arborist, certified by the International Society of Arboriculture (ISA), may be engaged to direct removal of branches from trees and large shrubs that are to remain if required to clear for new construction.
- C. Dead and damaged trees that are determined by the University's Representative to be incapable of restoration to normal growth pattern shall be removed at no additional cost to the University.
- D. Pruning operations shall be extended to restore the natural shape of entire tree where directed by the University's Representative and as noted on the Drawings.
- E. Cut evenly, using proper tools and skilled workers, to achieve neat severance with the least possible damage to the tree. Follow ISA Pruning Guidelines.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 56 39

**SECTION 01 57 23**  
**STORM WATER POLLUTION PREVENTION**

PART 1 - GENERAL

1.1 SCOPE

- A. Discharge of pollutants (any substance, material, or waste other than clear, uncontaminated storm water) from the project into the storm drain system is strictly prohibited by the Central Valley Regional Water Quality Control Board's (CVRWQCB) Water Quality Control Plan (Basin Plan).
- B. Contractor to provide all material, labor, and equipment for installation, implementation, and maintenance of all surface-water pollution prevention measures. This work includes the following:
  - 1. Furnishing, placing, and installing effective measures for preventing runoff of soil, silts, gravel, hazardous chemicals or other materials prohibited by the CVRWQCB from entering the storm water drainage system.
  - 2. Management of on-site construction materials in such a manner as to prevent said materials from contacting storm water or wash water and running off into the storm drain system.
  - 3. Complying with applicable standards and regulations specified herein.
  - 4. Maintain 1 copy of the most current revised Storm Water Pollution Protection Plan (SWPPP) at the Contractor's work site.
  - 5. Review any changes in the SWPPP plan each week at the weekly meetings with University's Representative and others. At each weekly meeting, the Contractor shall submit a numbered checklist of the current status of each prevention measure on the job site.
- C. In this section, the term "storm drain system" shall include storm water conduits, storm drain inlets and other storm drain structures, street gutters, channels, ditches, and the Fairfield Canal and Little Lake.
- D. Sanitary sewer discharge regulations are intended to provide protection of the sanitary sewer system and the University's or local Waste Water Treatment Plant (WWTP). In this section, "sanitary sewer" shall include any sanitary sewer manhole, clean out, sewer laterals or other connection to the WWTP.
- E. Contractor shall have storm water pollution prevention measures in place and conduct inspections year-round. It is the responsibility of the General Contractor to be prepared for a rain event in the non-rainy season, and to be aware of weather predictions. The University is not responsible for informing the General Contractor of rain predictions.
- F. Sanitary sewer blockages can result in a back-up and discharge to the storm drain system. Contractor shall immediately notify the University's Representative if they become aware of a clogged sanitary sewer associated with the Project.

- G. Contractor shall not allow any non-storm water from the Project to enter the storm drain system. Examples of non-storm water include water used for dust suppression, pipe flushing and testing, and domestic supply water used to wash streets, painting and drywall equipment, vehicles, or other uses.
- H. Water resulting from de-watering an excavation may be discharged to a storm drain only if it is free of pollutants, including sediment. Contractor shall use methods such as a settling basin or filter to ensure that dewatering discharges are free of pollutants.

## 1.2 REGULATIONS AND STANDARDS

- A. Contractor shall comply with the following applicable regulations, including all applicable amendments:
  - 1. Clean Water Act, United States Environmental Protection Agency, and Porter-Cologne Water Quality Act, State of California.
  - 2. Central Valley Regional Water Quality Control Board's Basin Plan, 1998 Edition.
  - 3. Waste Discharge Requirements Order No. 2010-0014-DWQ (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS000002) These Orders are referred to as the General Permit.
  - 4. NPDES Phase II General Municipal Permit requirements.
- B. Contractor shall comply with the following standards and guidelines on storm drain pollution prevention:
  - 1. California Stormwater Quality Association Handbooks – Construction, Municipal, Industrial and Commercial, and New Development and Redevelopment. These documents can be viewed and downloaded from the Association's website at <http://www.cabmphandbooks.org>.

## 1.3 SUBMITTALS

- A. Submittals shall comply with requirements specified in Section 01 33 23 Shop Drawings, Product Data and Samples.
- B. Submit a New Construction Project Information Form (Exhibit 19) to University's Representative. This form is required for compliance with the campus-wide permit with the CVRWQCB for discharges of storm water associated with construction activities.
- C. Review the University's Storm Water Pollution Prevention Plan (SWPPP) prior to ground breaking. The SWPPP contains all required elements specified in the General Permit using the SWPPP Template in Appendix B of the California Stormwater Quality Association – Stormwater Best Management Practice Handbook for Construction. This template can be downloaded from the California Stormwater Quality Association website at <http://www.cabmphandbooks.org/Construction.asp>. The SWPPP has been developed and revised as necessary to meet the following objectives:
  - 1. To identify pollutant sources that may affect the quality of storm water discharges associated with construction activity from the construction site.

2. To identify non-storm water discharges.
3. To identify, construct, and implement storm water pollution prevention measures (Best Management Practices, or BMPs) to reduce or eliminate pollutants in storm water discharges from the construction site, both during construction and after construction is completed.
4. To develop a maintenance schedule for BMPs installed during construction designed to reduce or eliminate pollutants after construction is completed (post-construction BMPs).
5. Contractor shall notify the University whenever there is a change in construction, operations or site conditions that may affect the discharge of pollutants to surface waters so that the SWPPP can be amended. All amendments should be dated and directly attached to the SWPPP.
6. The SWPPP shall include a site map and site-specific written plans that describes pollution sources for the construction activity and the methods that will be used for erosion and sediment control, hazardous materials management, and any other construction activity that are sources of pollution. The list of topics to be covered in the plan are included in Part 3 Execution of this Section.

- D. Site work shall not commence until the SWPPP has been reviewed and accepted by the University's Representative.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide materials as required for execution of the Work.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. The Contractor shall provide qualified personnel that will implement the University's SWPPP. The General Contractor will choose the best available performance-based technology and methods to prevent storm water pollution for construction site activity. The method(s) chosen shall be appropriate for each specific site condition.
- B. The University will provide a Qualified SWPPP Practitioner (QSP) to make all required inspections and complete inspection checklist, using a form provided by the State Water Board or Regional Water Board. General Contractor shall make all necessary corrections or changes noted on the inspection checklist.

### 3.2 SWPPP TOPICS

- A. Following are topics addressed in the SWPPP:
1. Introduction/Site Description:

- a. The SWPPP shall include basic information about the project including: size of site, type of construction, location of site, project start date and estimated completion date. The site description shall be updated to reflect changes in conditions which may reflect.
2. Maps:
  - a. The General Permit has specific map requirements, including a topographic map showing the location of nearby surface water bodies and the discharge location(s) for the site. A detailed site map is also required, which shall identify areas of soil disturbance, location of surface water bodies, areas of existing surface vegetation, location of sediment or pollutant control measures, site drainage patterns, areas used for storage of soils, waste, or materials, vehicle and equipment parking or service areas, existing paved areas and location of post-construction controls. The maps shall be updated as needed to reflect changes as the project progresses. The approved map and plan shall be kept onsite for reference by the Contractor, University's Representative or governmental agencies.
3. Description of Site and Soil Types:
  - a. Include the following estimates:
    - 1) The size of the construction site (in acres) ;
    - 2) The runoff coefficient of the site before and after construction;
    - 3) The percentage of the area of construction that is impervious before and after construction) .
4. Pollutant Sources:
  - a. List and describe pollutants that are likely to be present in storm water discharges from the site, such as sediment, waste materials, concrete, etc. Describe the locations of storage or use of such materials and the measures to prevent pollution.
5. Toxic Materials:
  - a. Describe all toxic materials that will be used during construction, such as adhesives, paint, petroleum products, pesticides, and vehicle fluids. Describe the locations of storage or use of such materials and the measures to prevent pollution.
6. Erosion and Sediment Control:
  - a. Provide a description of erosion and sediment control measures that will be used on the site, and correlate the description with the site map. Areas requiring erosion control measures are exposed soil, such as stockpiles, bare soil, sloped soil, and any area of disturbed soil. Erosion control measures include paving, tarp placement, soil blankets, mulching, seeding, hydro-mulching, and spreading straw. Sediment control measures include drain inlet protection, filter fabric, geo-textile silt fencing, gravel placement, gravel or sand bag placement, and straw wattle placement. This list is not all inclusive and the General Contractor should refer to the resources listed in this section to identify the best measures for the project. Describe measures to reduce the tracking of sediment from the site. Describe waste disposal practices and methods to prevent waste materials from polluting storm water. Indicate the location of concrete washout areas. Both erosion and sediment control practices are designed to be implemented as an integrated system of pollution control. Without erosion controls, sediment controls are easily overwhelmed and will not prevent pollution.

7. Non-Storm Water Management:
  - a. Describe all non-storm water discharges that may occur on site. Examples of non-storm water discharges include irrigation runoff, street cleaning, spills, or leakage from storage tanks. Non-storm water discharges should be eliminated or reduced to the extent feasible. Discharges from dewatering are allowed only if they are free of pollutants, including sediment.
8. Maintenance, Inspection and Repair of Controls:
  - a. Structural pollution controls require ongoing inspection, maintenance and repair. General Contractor shall maintain all pollution control measures to achieve compliance with the SWPPP and General Permit. Describe procedures for responding to failure of any structural controls and indicate the persons responsible for inspection, maintenance and repair.
9. Spill Prevention and Control:
  - a. Measures to prevent, control and respond to spills shall be described in the SWPPP. Contractor shall take precautions to prevent accidental spills of pollutants, including hazardous materials brought onsite by the Contractor. However, in the event of a spill, the Contractor shall be responsible for the following:
    - 1) Immediately contain and prevent leaks and spills of prohibited pollutants from entering the storm drain system. Clean up the spill and label the contained material. Store the container in a safe place and contact the University's Representative prior to disposal of the waste by the General Contractor. Contractor shall keep a spill kit on site at all times for this purpose. The General Contractor shall also keep a sampling kit, with the spill kit. At a minimum, three appropriate vials for sampling.
    - 2) Contractor shall comply with all federal, state, and local hazardous waste requirements. Ensure that no spilled materials are washed into the streets, gutters, storm drains, or creeks.
    - 3) Report any hazardous or unknown material spills immediately to the University's Representative and the University of California, Merced Office of Environment, Health and Safety. If a spill occurs after hours or on a weekend, call (209) 658-8487 and Merced County Department of Public Health, Division of Environmental Health at (209) 381-1090.
10. Post-Construction Stormwater Management
  - a. Describe all the control practices to reduce pollutants in storm water discharges after the construction activities are completed at the site. Post construction BMPs include: minimizing land disturbance, minimizing impervious surfaces, treatment of storm water runoff using filtration, use of efficient irrigation systems, and planting to reduce erodible surfaces.
11. Personnel:
  - a. Identify and describe the training of the personnel responsible for the implementation and monitoring of the SWPPP and BMPs. Documentation of training shall be available upon the request of the University's Representative or a regulatory agency.
12. Notification List:



- a. Provide the company's name, address and telephone number, along with a contact person's name and telephone number for everyone responsible for implementation of the SWPPP. The Contractor shall inform all subcontractors (if any) of the water pollution prevention requirements contained in this specification and the site-specific SWPPP and include appropriate subcontract provisions to ensure that these requirements are met.
13. Monitoring and Reporting:
- a. The SWPPP shall describe the monitoring program to ensure compliance with the General Permit. The monitoring plan shall include site inspections and the University's QSP shall conduct inspections of the construction site weekly, prior to anticipated storm events, during extended storm events, and after actual storm events to identify areas contributing to a discharge of storm water associated with construction activity. The name(s) and contact number(s) of the assigned QSP inspection personnel shall be listed in the SWPPP. Weekly and pre-storm inspections are to ensure that BMPs are properly installed and maintained; post-storm inspections are to assure that the BMPs have functioned adequately. The Contractor should also be inspecting BMPs regularly, prior to and after storm events to insure they are installed and maintained. During extended storm events, inspections by the QSP shall be required each 24-hour period. BMPs shall be evaluated for adequacy and proper implementation and whether additional BMPs are required in accordance with the terms of the General Permit.
  - b. Inspections by the QSP must be documented and the records maintained onsite for review by the University's Representative or regulatory agencies. If instances of non-compliance with the General Permit are identified, the Contractor shall notify the University's Representative immediately. Corrective measures should be implemented immediately following discovery of an exceedance of water quality standards or other instance of non-compliance.

### 3.3 ENVIRONMENTAL ENFORCEMENT

- A. The CVRWQCB has authority to enforce, through codified regulations, any portions of this Section that may violate applicable regulations. Agency enforcement may include but is not limited to: citations, orders to abate, bills for cleanup costs and administration, civil suits, and/or criminal charges. Contract compliance action by the University shall not be construed to void or suspend any enforcement actions by these or other regulatory agencies.
- B. Contractor shall notify the University's Representative within 24 hours after issuance of any citation(s) issued by any regulatory agency and shall be responsible for all fines and costs necessary to correct the conditions listed in the citation(s) to include all legal fees and University expenses.

END OF SECTION 01 57 23

**SECTION 01 60 00**  
**PRODUCT REQUIREMENTS**

PART 1 - GENERAL

1.1 REQUIREMENTS

- A. All material and equipment incorporated in the Work shall be:
  - 1. New.
  - 2. In a condition acceptable to the University's Representative.
  - 3. Suitable for intended use.
  - 4. Clean, dry, and undamaged.

1.2 TRANSPORTATION AND HANDLING

- A. Arrange for delivery of materials and equipment to minimize length of on site storage prior to installation.
- B. All common carrier deliveries shall be marked for the Contractor. Identify location of Project site by Project name, street address, etc.
- C. University will not receive deliveries on behalf of the Contractor.
- D. Deliver manufactured products and materials in their original unbroken containers or bundles, clearly labeled with manufacturer's name, brand, and grade seal or model number and labels intact until time of use.
- E. Handle materials and equipment in a manner to avoid damage to products and their finishes.
- F. Promptly remove damaged or defective products from the Project site and replace at no additional cost to the University.

1.3 STORAGE AND PROTECTION

- A. Other than Project site, storage space may not be available.
- B. Store manufactured products in accordance with manufacturers' instructions and with seals and labels intact and legible.
  - 1. Store products subject to damage by the elements in weather tight enclosures.
  - 2. Maintain temperature and humidity in accordance with manufacturers' recommendations.
- C. Exterior Storage
  - 1. Store materials and equipment above ground on blocking or skids to prevent soiling, staining, and damage.
  - 2. Cover products that are subject to damage by the elements with impervious protective sheet coverings. Provide adequate ventilation to prevent condensation.

3. Store sand, rock, or aggregate material in a well-drained area on solid surfaces to prevent mixing with foreign matter.
  - D. Arrange storage to allow adequate inspection.
  - E. Periodically inspect stored products to assure that products are maintained under specified conditions and are free from damage and deterioration.
  - F. Protection After Installation
    1. Prevent damage to materials and equipment.
    2. Use whatever protective materials or methods are necessary to prevent damage to installed products from traffic, construction operations, and weather. Remove protection when no longer required.
    3. Maintain temperature and humidity conditions in interior spaces for the Work in accordance with manufacturers' instructions for the materials and equipment being protected.
- 1.4 UNDERWRITERS' LABORATORIES LABEL
- A. Materials and equipment, for which Underwriters' Laboratories, Inc. (UL) standards have been established and their label service is available, shall bear the appropriate UL Label.
- 1.5 MANUFACTURERS' TRADE MARKS AND NAMES
- A. University's Representative reserves the right to review and request the removal or redesign of manufacturers' trade marks and names on items of materials and equipment which will be exposed to view in the completed Work. Such removal or redesign shall be with no adjustment of the Contract Sum.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 60 00

**SECTION 01 71 23**  
**FIELD ENGINEERING**

PART 1 - GENERAL

1.1 PREPARATION

- A. Lay out and install all Work to lines and grades in accordance with Contract Documents.

1.2 LAYOUTS AND MEASUREMENTS

- A. Contractor shall provide all survey Work required for horizontal and vertical location of all Work in this Project as applies to their scope of work.
- B. Contractor shall be responsible for paying for the replacement and reestablishment of control stakes, monuments, and lines furnished by the University that are destroyed or disturbed by General Contractor's construction activities. The University shall provide the following
1. Establish site benchmarks
  2. Provide pad certification
  3. Establish all building corners, 6 column lines in the north-south direction, 2 column lines in the east-west and 4 elevation benchmarks at locations directed by the University's Representative prior to excavation
  4. Reestablish the above following excavation and prior to the start of foundations.
  5. Establish the same column lines on each floor and roof following placement of concrete slabs plus provide 2 elevation benchmarks at each floor (inside the building) as directed by the University's Representative.
  6. Reestablish building column line locations and benchmarks prior to start of site hardscape work as directed by the University's Representative.
- C. Contractor shall furnish the University's Representative, prior to Project acceptance, 2 complete sets of the field notes for the survey Work and cut sheets in addition to 2 sets of drawings marked showing all deviations from Project alignment and grades as applies to their scope of work.
- D. Generally, grades shall match adjacent surfaces, and existing flow lines shall be maintained.

1.3 SURVEY REFERENCE POINTS

- A. Contractor shall locate and protect control points prior to beginning the Work, and preserve all permanent reference points throughout construction operations. The General Contractor shall:
1. Not change reference points without prior approval of the University's Representative.
  2. Report to the University's Representative when any reference point is lost, destroyed, or requires relocation due to necessary changes in grades or locations.

1.4 PROJECT SURVEY REQUIREMENTS

- A. Contractor shall establish lines and levels, locate, and lay out for own work.
- B. Contractor shall provide layouts as Work proceeds to assure compliance with required schedules, lines, levels, and tolerances for own work.

1.5 RECORDS

- A. Contractor are required to maintain a complete and accurate log of all control and survey Work as it progresses for own work.

1.6 SUBMITTALS

- A. Upon request by the University's Representative, the Contractor shall submit documentation to verify accuracy of field engineering Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 71 23

**SECTION 01 73 23**  
**SUPPORTING FROM BUILDING STRUCTURE**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section provides guidelines and limitations all bracing, anchorage and seismic restraints for supporting all mechanical, electrical, plumbing, audio-visual or architectural items from the building structure.
- B. The Contractor shall design and install all support and bracing systems except as noted. The Contractor shall provide for attachment to portions of the building structure capable of bearing the loads imposed and shall design systems to not over stress the building structure.
- C. The Contractor is not required to design support and bracing for items that the Contract Documents provide specific attachment, support, and bracing.
- D. Seismic bracing is not required for the following items:
  - 1. Gas piping less than 1 inch inside diameter.
  - 2. Piping in boiler and mechanical equipment rooms less than 1.25 inches inside diameter.
  - 3. All other piping less than 2.5 inch inside diameter, unless racked together.
  - 4. All piping and duct suspended by individual hangers 12 inches or less in length.
  - 5. All rectangular air handling ducts less than 6 square feet in cross sectional area.
  - 6. All round air handling ducts less than 28 inches in diameter.
  - 7. All electrical conduits less than 2.5 inches inside diameter, unless racked together.

1.2 QUALITY ASSURANCE

- A. Design and install all support systems to comply with the Seismic Design Category D requirements of the 2007 California Building Code (CBC), Chapter 16 and ASCE 7-05, Chapter 13.
- B. For seismic bracing design use the services of a structural engineer licensed in California.
- C. For seismic bracing for mechanical, electrical and plumbing systems, refer to the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems" for guidelines.

1.3 SUBMITTALS

- A. Submit Shop Drawings for all substructures and attachment methods in accordance with Section 01 33 23 Shop Drawings, Product Data and Samples.
- B. Submit proposed alternative methods of attachment for review and approval by the University's Representative prior to deviating from the requirements given below.

- C. For all seismic bracing systems, submit structural calculations and details prepared and signed by the General Contractor's licensed engineer that include all resultant forces applied to the building structure. Do not over stress building structure. Calculations will be reviewed for compliance with design criteria, not for arithmetic.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Furnish all substructures and fasteners required to comply with the limitations given below. Use materials as specified in the various Sections and as appropriate to the use.
- B. Channel framing systems: as required to meet Project design.
- C. All exterior materials: hot-dipped galvanized or stainless steel.

## PART 3 - EXECUTION

### 3.1 SEISMIC BRACING

- A. In applying formulae (13.3-1), (13.3-2), (13.3-3) or (13.3-4) from Chapter 13 of ASCE 7-05 the following minimum values, unless otherwise required by ASCE 7-05, shall apply:

$$I_p = 1.0$$

$$S_{DS} = 0.48$$

- B. Design and install seismic bracing so as not to defeat the operation on any required vibration isolation or sound isolation devices.

END OF SECTION 01 73 23

**SECTION 01 73 29**  
**CUTTING, PATCHING AND MATCHING**

PART 1 - SUMMARY

1.1 DESCRIPTION

A. Work Included

1. Patching and matching existing Work altered or disturbed to accommodate new construction.
2. Patching and matching existing Work damaged or defaced during new construction as required to restore to condition at time of award of Contract.
3. Matching of new Work in existing construction to adjacent existing Work unless otherwise noted.
4. Execute cutting, patching and matching in a manner to prevent damage to other Work and to provide proper surfaces for the installation of repairs, penetrations through surfaces, equipment, or other items.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 23 Shop Drawings, Product Data and Samples.
- B. Product Literature and Shop Drawings: Submit for review materials, methods, or systems different from existing Work to be matched.
- C. Samples as requested by the University's Representative.

1.3 QUALITY ASSURANCE

A. Design Criteria

1. Patching shall achieve security and protection where exposed to weather, and shall preserve the continuity of existing fire ratings.
2. Cutting, patching and matching shall successfully duplicate the undisturbed adjacent finishes, colors, textures, and profiles. Where there is dispute over whether the duplication is successful or has been achieved to a reasonable degree, the judgment of the University's Representative shall be final.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in the original packages, containers or bundles with seals unbroken and labels intact until time of use.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements: Follow the manufacturer's recommendations.



## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Materials shall be as required to match the appearance, quality and performance of the existing finishes to be duplicated.
- B. Where the existing finish to be duplicated was achieved with materials now out of production or otherwise unavailable, obtain review and acceptance by the University's Representative of substitutions.
- C. Provide primers, sealers, underlayments, backing, blocking, furring, suspension systems, and related items required for any purpose in patching existing Work.
- D. Materials shall be subject to the review of and acceptance by the University's Representative.

## PART 3 - EXECUTION

### 3.1 GENERAL REQUIREMENTS

- A. Perform Work in accordance with the manufacturer's recommendations, deviating only as directed by the University's Representative to achieve a good match.
- B. For the following items, the Contractor shall employ the installer or fabricator to perform any cutting, patching or matching of such items:
  - 1. Weather-exposed or moisture-resistance elements.
  - 2. Fireproofing.
  - 3. Finishes surfaces exposed to view.
- C. Adjust and fit products to provide a neat installation.
- D. Inform the University's Representative of locations where Work will be noisy, and obtain the University's Representative approval of the times during which such Work will be done; otherwise keep noise to a minimum.
- E. Finish or refinish surfaces as required to match adjacent finishes. Refinish to nearest intersection or refinish entire assembly.
- F. Patching of ceramic tile surfaces in buildings:
  - 1. Restore to pre-existing new condition, using specified materials.

### 3.2 PAINTING

- A. Extent of Painting
  - 1. Paint over the entire surface plane, unless otherwise noted.
  - 2. Over patched wall, soffit, or ceiling surfaces, paint to the nearest cut-off line for the entire surface, such as the intersection with the adjacent wall or ceiling, a beam,

a pilaster, or to nearest opening frame where a total cut-off does not occur within 10 feet of the patch, unless otherwise noted.

- B. Ensure painted surfaces do not present a spotty, touched-up appearance.
- C. Provide a smooth continuous surface in texture, coverage, and color.

### 3.3 PAVEMENT

- A. Asphaltic and Portland Cement concrete shall be patched to match adjacent surfaces and thickness, with similar material; e.g., exposed aggregate concrete, colored concrete, etc.
- B. All damaged concrete shall be removed and replaced to the nearest existing expansion or control joint, where joints were constructed to the full depth of the slab, not at surface scribed or sawn joints unless specifically approved by the University's Representative
- C. Restore pavement markings.
- D. Other paving materials and systems such as decomposed granite; stone pavers, etc. shall be replaced or restored in kind. Replace or restore an entire panel or area to present a uniform appearance to the satisfaction of the University's Representative.
- E. All new surfaces shall be within 1/4-inch elevation of adjacent surfaces. All slopes to adjacent surfaces shall be less than 1 in 20, unless approved by University's Representative.

### 3.4 LANDSCAPING AND IRRIGATION

- A. Restore to pre-existing condition, using similar materials.

END OF SECTION 01 73 29

**SECTION 01 73 35  
SELECTIVE DEMOLITION**

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Extent of demolition will be shown on Drawings.
- B. No demolition shall commence until prior written approval is obtained from the University's Representative.
- C. Unless otherwise indicated, demolished materials become Contractor's property. Remove from Project site.
- D. Items indicated to be removed and salvaged remain University's property. Remove, clean, and deliver to University's designated storage area.
- E. Comply with Environmental Protection Agency (EPA) regulations and disposal regulations of authorities having jurisdiction.
- F. Prior to starting demolition of any building or structure, comply with requirements listed in Section 01 41 00 Regulatory Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Maintain and protect existing utilities to remain in service before proceeding with demolition, providing bypass connections to other buildings on the system.
- B. Locate, identify, shut off, disconnect, and cap off utility services to be demolished.
- C. Conduct demolition operations and remove debris to prevent injury to people and damage to adjacent buildings and site improvements.
- D. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
- E. Promptly patch and repair holes and damaged surfaces of building caused by demolition. Restore ex-posed finishes of patched areas and extend finish restoration into remaining adjoining construction.
- F. Promptly remove demolished materials from University's property and legally dispose of them. Do not burn demolished materials.

END OF SECTION 01 73 35

**SECTION 01 74 19**  
**SITE WASTE MANAGEMENT PROGRAM**

PART 1 - GENERAL

1.1 SUMMARY

- A. The University of California Merced is committed to a triple zero policy of zero waste, zero emissions and zero energy by 2020. Site Waste Management is designed to enforce the triple zero policy. The General Contractor is required to follow the requirements of this specification section and LEED Green Building Design and Construction, latest edition, Waste Management Credit 2.
- B. Environmental Issues: Project requires a special Site Waste Management Program:
  - 1. Divert a minimum of 95 percent of project waste from landfill (weight basis).
  - 2. Extract and re-cycle materials from the waste stream.
  - 3. Effect optimum control of solid wastes.
  - 4. Prevent environmental pollution and damage.
- C. Related Work:
  - 1. Section 01 35 00 Special Requirements
  - 2. Section 01 35 43 Hazardous Materials Procedures.
  - 3. Section 01 73 35 Selective Demolition
  - 4. Section 01 81 13 LEED® Requirements.
  - 5. All specification sections or scope of work which has construction waste as defined in this section.

1.2 DEFINITIONS

- A. Inert Fill: A permitted facility that accepts inert waste such as asphalt and concrete exclusively.
- B. Class III Landfill: A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.
- C. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- D. Construction and Demolition Waste: Includes solid wastes, such as building materials, packaging, trash, debris, and rubble resulting from land-clearing, construction, remodeling, repair, and demolition operations and other similar materials.
  - 1. Rubbish: Includes both combustible and noncombustible wastes, such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, and bones, and other similar materials.

2. Debris: Includes both combustible and noncombustible wastes, such as leaves and tree trimmings that result from construction or maintenance and repair work, and other similar materials.
- E. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic wastes, and other similar materials.
- F. Sanitary Wastes:
  1. Garbage: Refuse and scraps resulting from preparation, cooking, distribution, or consumption of food, or other similar materials.
- G. Sewage: Domestic sanitary sewage.

### 1.3 GENERAL REQUIREMENTS

- A. The Contractor shall furnish labor, containers, transportation and payment of any disposal fees for construction waste generated by all new construction work. Removal of waste generated by selective demolition and removal of hazardous waste shall be the responsibility of the Contractor. Paperwork demonstrating that Selective Demolition waste has been recycled shall be provided by the Contractor.
- B. The General c shall prepare and submit the following documentation.
  1. Monthly report showing total tonnage of construction waste, tonnage diverted, each type of diverted material, diversion percentages and all weight tickets as required by LEED Credit MR 2.
  2. Final report when all construction activities are completed showing total tonnage of construction waste, tonnage diverted, each type of diverted material, diversion percentages and all weight tickets as required by LEED Credit MR 2.
  3. All LEED documentation as required by LEED Credit MR 2.

### 1.4 HAZARDOUS MATERIALS

- A. The University has identified all known hazardous substances on this project. Comply with requirements listed in the following Sections:
  1. Section 01 35 43 Hazardous Materials Procedures.

### 1.5 REQUIREMENTS

- A. Recycling: Implemented by Contractor is a recycling program that includes separate collection of waste materials of following types as applicable to Project:
  1. Debris for lunch trash.
  2. Asphalt
  3. Concrete and concrete blocks.
  4. Brick and masonry materials.
  5. Untreated lumber.

6. Clean dimensional wood and palette wood.
  7. Plywood, oriented strand board, and medium density fiberboard.
  8. Paper – bond.
  9. Paper (e.g. newsprint).
  10. Cardboard and paper packaging materials.
  11. Plastics.
  12. Rigid foam.
  13. Insulation.
  14. Ferrous metal.
  15. Non-ferrous metals (e.g. copper, aluminum, etc.).
  16. Glass.
  17. Gypsum board (unpainted).
  18. Carpet and pad.
  19. Beverage containers.
  20. Plumbing fixtures.
  21. Electrical fixtures and wires.
  22. Others as noted on the Waste Management Plan, required by LEED Green Building Design and Construction reference guide 2009 edition and that has been approved by the University.
- B. Separation of Waste: Contractor shall coordinate deposit of contractors waste into the appropriate recycling and waste bins. Recycling and waste bin area shall be kept neat, clean and marked. A list of acceptable and unacceptable materials, in order to avoid contamination of materials, will be posted on each waste and recycling bin by the Contractor.
- C. Handling: Contractor shall keep materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process:
1. Clean materials that are contaminated prior to placing in collection containers.
  2. The Contractor shall arrange for collection by or delivery to appropriate recycling center or transfer station that accepts construction and demolition waste for purpose of recycling.

END OF SECTION 01 74 19

**SECTION 01 77 00**  
**CLOSEOUT PROCEDURES, FINAL CLEANING, AND EXTRA MATERIAL**

**PART 1 - GENERAL**

**1.1 FINAL COMPLETION**

- A. When Work is complete, submit written certification to University's Representative that:
  - 1. Work has been inspected by the General Contractor for compliance with the Contract Documents.
  - 2. Work has been completed in accordance with the Contract Documents.
  - 3. Equipment and systems have been tested in presence of the University's Representative and are operational.
  - 4. Work is complete and ready for final inspection.

**1.2 PREPARATION FOR FINAL INSPECTION**

- A. Perform final cleaning as specified below.
- B. In accordance with Section 01 78 36 Guarantees, Warranties, Bonds, Service & Maintenance Contracts, assemble guarantees/warranties with service and maintenance contracts, operating and maintenance instructions, and other items as specified, and submit to the University's Representative.

**1.3 FINAL CLEANING**

- A. Upon completion of the Work, the General Contractor shall promptly remove from the Project site and Project site vicinity (including roofs):
  - 1. All of General Contractor's equipment
  - 2. All temporary structures
  - 3. All surplus material, including construction debris, lumber, etc.
  - 4. Remove waste, surplus materials and rubbish from Project site, including roof areas.
- B. The entire Project site shall be left in a neat and clean condition to the satisfaction of the University's Representative.
- C. The General Contractor shall execute final cleaning prior to final inspection. Cleaning shall be by experienced professional cleaners.
- D. The General Contractor shall:
  - 1. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish glass and glossy surfaces, vacuum carpeted and soft surfaces, broom clean other interior spaces.

2. Clean equipment and fixtures to a sanitary condition, clean permanent filters and replace disposable filters of mechanical equipment operated during construction.
3. Clean ducts, blowers and coils if units were operated without filters during construction.
4. Vacuum and wipe sides of electrical panels and cabinetwork.
5. Comply with manufacturer's instructions for cleaning.
6. Clean each surface or unit to condition expected from normal, commercial building cleaning and maintenance program.
7. Clean Project site, sweep paved areas, rake clean ground surfaces.
8. Remove stains, dirt, finger marks, etc., from wall and ceiling surfaces and trim.
9. Disinfect, clean and polish all plumbing fixtures.
10. Use cleaning materials and methods that will not create hazards to health or property or cause damage to products or Work.
11. Remove temporary tapes, wrapping, coatings, paper labels, and similar items. Dust, mop, wash or wipe exposed and semi-exposed surfaces as necessary to leave work in new, clean condition.

#### 1.4 RESTORATION OF DAMAGED WORK

- A. Restore or replace, as specified or directed by the University's Representative, materials and finishes damaged from movement of equipment or other operations by General Contractor at no additional cost to the University.
- B. Restoration shall be equal to original Work, and finishes shall match appearance of existing adjacent Work.

#### 1.5 REMEDIAL WORK

- A. Remedial Work necessary owing to faulty workmanship or materials shall be performed by the General Contractor at no additional cost to the University.
- B. Work shall be coordinated with University's Representative and performed at such time and in such manner to cause minimal interruption and inconvenience to University's operations.

#### 1.6 EXTRA MATERIAL

- A. In the various Sections, where additional or extra material is required to be delivered to the University, obtain from the University's Representative, to whom the material is to be delivered, a signed receipt stating the nature of the material, the quantity, and the place and date. Deliver such receipts to the University's Representative upon completion of the Work.
- B. In addition to required parts listed in other Sections of the Specification, provide any special programming software and database tools necessary to operate systems.



PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 77 00

SECTION 01 78 36

GUARANTEES, WARRANTIES, BONDS, SERVICE & MAINTENANCE CONTRACTS

PART 1 - GENERAL

1.1 GUARANTEES

- A. Guarantees from Subcontractors shall not limit General Contractor's warranties and guarantees to the University. The General Contractor shall cause warranties of Subcontractors to be made directly to the University. If such warranties are made to the General Contractor, General Contractor shall assign such warranties to the University prior to final payment.
- B. At a minimum, the General Contractor shall warrant that all work installed under this Contract is free of defect and will remain in good working order for a period of one year for all surface improvements and five years for all underground work. If warranties specified elsewhere in these documents are for a longer period of time than that specified in this section, the longer warranties shall apply.

1.2 FORM OF GUARANTEE

- A. Submit written guarantees, in the form of Guarantee/Warranty Form (Exhibit 16) in accordance with Section 01 33 23 Shop Drawings, Product Data and Samples.

1.3 SUBMITTAL REQUIREMENTS

- A. Assemble required guarantees, bonds, and service and maintenance contracts.
- B. Number: 1 signed original and 2 copies.
- C. Table of Contents: Neatly typed and in orderly sequence. Provide complete information for each item as follows:
  - 1. Product or Work item.
  - 2. Firm name, address, telephone number and name of principal.
  - 3. Scope.
  - 4. Identifying name, serial number or part number.
  - 5. Proper procedure in case of failure.
  - 6. Circumstances that might affect the validity of guarantee or bond.

1.4 FORM OF SUBMITTAL

- A. Prepare in duplicate packets.
- B. Format
  - 1. On sheets 8-1/2 by 11 inches punched for 3-ring binder. Fold larger sheets to fit into binders.

2. Identify each packet on the cover with typed or printed title, “Guarantees and Bonds”, and the following:
  - a. Project No.
  - b. Title of Project.
  - c. Name of General Contractor.
- C. Binders: Commercial quality, 3-ring, with durable and cleanable plastic covers.
- D. Time of Submittals
  1. Within 10 days after date of Substantial Completion, prior to request for final payment.
  2. For Work activities, where Final Completion is delayed beyond the date of Substantial Completion, provide updated submittal within 10 calendar days after Final Completion, listing the date of Final Completion as the start of the Guarantee To Repair Period.

#### 1.5 SUBMITTALS REQUIRED

- A. Submit guarantees, bonds, and service and maintenance contracts specified in the individual Specification Sections.
- B. Compile all warranties from the specified individual Specification Sections. Submit those in a commercial, 3-ring binder with durable and cleanable plastic covers.

#### 1.6 SPARE PARTS AND MAINTENANCE MATERIAL

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual Specification Sections.
- B. Deliver to Project site and place in location as directed by the University’s Representative and obtain receipt prior to final payment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 36

**SECTION 01 78 39**  
**PROJECT AS-BUILT DOCUMENTS**

PART 1 - GENERAL

1.1 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store Project as-built documents and samples in the Contractor's office in a location completely separate from documents used for construction. The location shall be approved by the University's Representative.
- B. Maintain as-built documents in order and in a clean, dry, legible condition.
- C. Do not use as-built documents for construction.

1.2 AS-BUILT DOCUMENTS

- A. As-built Drawings
  - 1. The Contractor shall maintain on the Project site at all times in a clean, dry legible condition, 1 set of all Drawings and 1 set of all Shop Drawings. These Drawings shall be used to record as-built conditions on a day-to-day basis, and shall be kept current, and shall be available for inspection by the University's Representative during normal working hours.
  - 2. The Contractor shall obtain weekly written confirmation from the University's Representative that the as-built conditions are adequately represented in the As-built Drawings.
  - 3. On three (3) occasions to be determined by the University's Representative, the Contractor shall prepare in both AUTOCAD® format (latest version available at date of bid) and PDF Format on CD-ROM digital images of the current As-built Drawings. The image files shall be in format ORIGINAL.DWG and DRAWING NUMBER.PDF. The Contractor may scan the As-built Drawings or use a digital camera or any other appropriate means so long as the resulting image is legible when viewed from the CD-ROM using a computer. All cross references within the same AUTOCAD® drawing must be bound.
  - 4. Record the following types of information on As-built Drawings
    - a. Location of Work buried under or outside the building, such as plumbing and electrical lines and conduits. Provide horizontal and vertical dimensions from fixed points. Record all locations of underground Work, points of connection, valves, manholes, catch basins, capped stub outs, invert elevations, etc.
    - b. Locations of all significant Work concealed inside the building, the locations of which were changed by the Contractor from those shown on the Drawings.
    - c. Locations of all items, not necessarily concealed but varying from the locations shown on the Drawings.
    - d. All changes in size, location, and other features of installation not shown on Drawings.
    - e. Sufficient information such that Work concealed in the building may be located with reasonable ease and accuracy. This may be accomplished by dimension or by stating the relationship to the spaces in the building

near which the Work was installed. The University's Representative's decision on what constitutes sufficient information shall be final.

- f. All electrical and control installations to indicate terminal points, wire numbers/circuit numbers, panel designations, device identification, and/or sequence of operations.
  - g. Record existing below-grade utilities if they are exposed by the project or are located within the Project boundary on the as-built drawings.
  - h. Provide dimension from a designated reference point for all below-grade utilities, provide and record on the as-built drawing the exact dimension from an existing designated reference point relative to the campus bench mark elevation.
5. Additional drawings shall be provided as required to properly describe changes.
  6. Upon completion of the Work, the As-built Drawings shall be certified by the Contractor to represent the true, as-built conditions and shall be given to the University's Representative as described in Subsection 1.3.

B. Specifications and Addenda

1. Record the following:
  - a. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  - b. Changes made by Addenda, Change Order (Exhibit 9), or Field Order (Exhibit 8), and clarifications and interpretations made by Letter of Instruction (Exhibit 26).
  - c. Provide two (2) hard copies of the specifications and addenda ten (10) days after Final Completion.

C. Large-Scale Layout Drawings

1. Division 22 -Plumbing, Division 23-Heating, m Ventilating, and Air-Conditioning (HVAC) and Division 26-Electrical of the Specifications require the preparation of large-scale, detailed Layout Drawings of the Work of those Divisions. These Layout Drawings are not Shop Drawings as defined by the General Conditions, but, together with Shop Drawings or Layout Drawings of all other affected Sections, are used to check, coordinate, and integrate the Work of the various Sections.

D. Project Photographs

1. At appropriate intervals but not less than once a month, the Contractor shall submit digital site photographs on CD-ROM to the University's Representative. These photographs shall:
  - a. Use format NAME.JPG
  - b. Show the completed installation of all pipes, ducts, cable trays and other mechanical, electrical and plumbing services before they are covered and hidden from view. This shall include, but not be limited to, services cast into concrete elements; buried services covered by ground slabs; services in walls hidden by sheetrock, tile, or plaster; services above ceilings.

2. The CD-ROM containing the photographs shall also contain an electronic file with enough information to identify the exact location of the element shown in each photograph. The electronic file shall:
  - a. Be in Microsoft Word or Excel format.
  - b. Cross reference to the name of each photograph.
  - c. Identify the location and direction of each photograph. As a minimum, this shall include element identification, grid reference, floor number if applicable and cardinal direction photographer was facing when photograph was taken.
  - d. Identify the date of the photograph.

### 1.3 PROJECT LEGACY DOCUMENTS

#### A. AS-BUILT DRAWINGS

1. The Contractor shall submit to the University's Representative, 10 calendar days after Final Completion, fully updated As-built Drawings and Shop Drawings. These Drawings shall be prepared from the As-built Drawings.
2. The As-Built Drawings shall be in electronic format, AUTOCAD® latest version available at date of bid. File shall be ORIGINAL.DWG format and PDF format. Electronic media shall be CD-ROM. The General Contractor shall provide two (2) hard copies of the drawings on 24 pound 96 Bright Bond paper or better quality and two (2) copies on CD-ROMs. Each CD-ROM shall contain all of the electronic Drawing files.
3. The Contractor's AUTOCAD® As-Built Drawings may be based on AUTOCAD® Design Drawings provided by the University or the University's Design Professional so long as for each drawing:
  - a. Any lines added to the Design Drawing in model space by the Contractor shall be in AUTOCAD® layers not currently used by the Design Drawings. The Contractor shall not use more than five (5) layers for added lines.
  - b. Any lines deleted from the Design Drawing in model space by the Contractor shall be copied into a single layer not currently used by the Design Drawings.
  - c. The Contractor's As-Built Drawings based on the Design Drawings shall therefore contain:
    - (1) The lines on the Design Drawings in the same AUTOCAD® layers as the Design Drawings (not changed by the Contractor).
    - (2) A single AUTOCAD® layer containing the lines on Design Drawings deleted by the Contractor.
    - (3) Not more than five (5) AUTOCAD® layers containing the lines added by the Contractor to the Design Drawing.
4. AUTOCAD® As-Built Drawings not based on AUTOCAD® Design Drawings provided by the University or the University's Design Professional, shall be configured as follows:
  - a. Title block and plot set-up shall be in Paper space.
  - b. All other drawing data shall be in Model space.
  - c. Each drawing shall contain a title block and orientation/north arrow approved by the University's Representative.

B. SHOP DRAWINGS

1. The Contractor shall submit to the University's Representative, 10 calendar days after Final Completion, fully updated Shop Drawings.  
Contractor shall:
  - a. Provide 2 hard copies of the Shop Drawings on 24 pound, 96 Bright Bond paper.
  - b. Provide 2 CD-ROMs, each of which contains all drawing data if the Contractor used Computer Aided Drafting software to prepare the Shop Drawings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 39

SECTION 01 79 00  
TRAINING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section contains requirements for training the University's personnel, by persons retained by the Contractor specifically for the purpose of providing training in the proper operation and maintenance of the equipment and systems installed under this contract.

1.2 RELATED WORK AND DOCUMENTS

- A. Section 01 91 00 Commissioning
- B. Division 14 Conveying Systems
- C. Division 21 Fire Suppression
- D. Division 22 Plumbing
- E. Division 23 Heating, Ventilating and Air-Conditioning (HVAC)
- F. Division 26 Electrical
- G. Division 27 Communications
- H. Division 28 Electronic Safety and Security

1.3 QUALITY ASSURANCE

- A. When required by the Contract documents, the Contractor shall provide on-the-job training of the University's personnel. The training sessions shall be conducted by qualified, experienced, factory-trained representatives of the various equipment manufacturers. Training shall include instruction in both operation and maintenance of the subject equipment.

1.4 SUBMITTALS

- A. The following information shall be submitted to the University's Representative in accordance with the provisions of Section 01 33 23 Shop Drawings, Product Data and Samples. The material shall be reviewed and accepted by the University's Representative as a condition precedent to receiving progress payments in excess of 50 percent of the contract amount and not less than 3 weeks prior to the provision of training:
- B. Lesson plans for each training session to be conducted by the manufacturer's representatives. In addition, training manuals, handouts, visual aids, and other reference materials shall be included.
- C. Subject of each training session, identity and qualifications of individuals to be conducting the training, and tentative date and time of each training session.



- D. CD recordings shall be taken by a professional photographer, of all training sessions and field instructions shall be submitted to the University at conclusion of training.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Where specified, the Contractor shall conduct training sessions for the University's personnel to instruct the staff on the proper operation, care, and maintenance of the equipment and systems installed under this Contract. Training shall take place at the site of the Work and under the conditions specified in the following paragraphs. Approved operation and maintenance manuals shall be available at least 30 calendar days prior to the date scheduled for the individual training session. Contractor shall ensure that Operation and Maintenance manuals have approved by the Design Team and the required number of O&M manuals have been provided to the University's Representative at least 2 weeks in advance of training.

### 2.2 LOCATION

- A. Training sessions shall take place at the Project Site.

### 2.3 LESSON PLANS

- A. Formal written lesson plans shall be prepared for each training session. Lesson plans shall contain an outline of the material to be presented along with a description of visual aids to be utilized during the session. Each plan shall contain a time allocation for each subject.
- B. One complete set of originals of the lesson plans, training manuals, handouts, visual aids and reference material shall be presented to the University and shall be suitably bound for proper organization and easy reproduction. The Contractor shall furnish at least 10 copies of necessary training manuals, handouts, visual aids and reference materials at least 1 week prior to each training session.

### 2.4 FORMAT AND CONTENT

- A. Each training session shall be comprised of time spent both in the classroom and at the specific location of the subject equipment or system. As a minimum, the training session shall cover the following subjects for each item of equipment or system:
  - 1. Familiarization
    - a. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and operation and maintenance manuals.
    - b. Check out the installation of the specific items.
    - c. Demonstrate the unit and indicate how all parts of the specifications are met.
    - d. Answer questions.
  - 2. Safety
    - a. Using material previously provided, review safety references.
    - b. Discuss proper precautions around equipment.

3. Operation
  - a. Using material previously provided, review reference literature.
  - b. Explain all modes of operation (including emergency).
  - c. Check out University's personnel on proper use of the equipment.
4. Preventative Maintenance
  - a. Using material previously provided, review preventive maintenance (PM) lists including
    - (1) Reference material.
    - (2) Daily, weekly, monthly, quarterly, semiannual and annual jobs.
  - b. Show how to perform PM jobs.
  - c. Show University's personnel what to look for as indicators of equipment problems.
5. Corrective Maintenance
  - a. List possible problems.
  - b. Discuss repairs – point out special problems.
  - c. Open up equipment and demonstrate procedures, where practical.
6. Parts
  - a. Show how to use previously provided parts list and order parts.
  - b. Check over spare parts on hand. Make recommendations regarding additional parts that should be available.
7. Local Representatives
  - a. Describe where to order parts: Name, address, telephone and Email address.
  - b. Describe service problems:
    - (1) Who to call.
    - (2) How to get emergency help.
8. Operation and Maintenance Manuals
  - a. Review any other material submitted.
  - b. Update material, as required.

## PART 3 - EXECUTION

### 3.1 TRAINING

- A. Training shall be conducted in conjunction with the operational testing and commissioning periods. Classes shall be scheduled such that classroom sessions are interspersed with field instruction in logical sequence. The Contractor shall arrange to have the training conducted on consecutive days, with no more than 6 hours of classes scheduled for any one day. Concurrent classes shall not be allowed. Training shall be certified by listing attendees and subjects covered.
- B. Acceptable operation and maintenance manuals for the specific equipment shall be provided to the University prior to the start of any training. Videotaping shall take place concurrently with all training sessions. All training sessions and field instruction shall be videotaped by the Contractor and tapes of all classes submitted to the University.
- C. The following services shall be provided for each item of equipment or system as required in individual specification sections. Additional services shall be provided, where specifically required in individual specification sections.

1. As a minimum, classroom equipment training for operations personnel shall include:
  - a. Using slides and drawings, discuss the equipment's specific location in the plant and an operational overview.
  - b. Purpose and plant function of the equipment.
  - c. A working knowledge of the operating theory of the equipment.
  - d. Startup, shutdown, normal operation, and emergency operating procedures, including a discussion on system integration and electrical interlocks, if any.
  - e. Identify and discuss safety items and procedures.
  - f. Routine preventative maintenance, including specific details on lubrication and maintenance of corrosion protection of the equipment and ancillary components.
  - g. Operator detection, without test instruments, of specific equipment trouble symptoms.
  - h. Required equipment exercise procedures and intervals.
  - i. Routine disassembly and assembly of equipment if applicable (as judged by the University on a case-by-case basis) for purposes such as operator inspection of equipment.
2. As a minimum, hands-on equipment training for operations personnel shall include:
  - a. Identify location of equipment and review the purpose.
  - b. Identifying piping and flow options.
  - c. Identifying valves and their purpose.
  - d. Identifying instrumentation:
    - (1) Location of primary element
    - (2) Location of instrument readout.
  - e. Discuss purpose, basic operation, and information interpretation.
  - f. Discuss, demonstrate, and perform standard operating procedures and round checks.
  - g. Discuss and perform the preventative maintenance activities.
  - h. Discuss and perform startup and shutdown procedures.
  - i. Perform the required equipment exercise procedures.
  - j. Perform routine disassembly and assembly of equipment if applicable.
  - k. Identify and review safety items and perform safety procedures, if feasible.
3. As a minimum, classroom equipment training for the maintenance and repair personnel shall include:
  - a. Theory of operation.
  - b. Description and function of equipment.
  - c. Startup and shutdown procedures.
  - d. Normal and major repair procedures.
  - e. Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the "pass" and "no pass" test instrument readings.
  - f. Routine and long-term calibration procedures.
  - g. Safety procedures.
  - h. Preventative maintenance such as lubrication; normal maintenance such as belt, seal, and bearing replacement; and up to major repairs such as

- replacement of major equipment part(s) with the use of special tools, bridge cranes, welding jigs, etc.
4. As a minimum, hands-on equipment training for maintenance and repair personnel shall include:
    - a. Locate and identify of equipment components.
    - b. Review the equipment function and theory of operation.
    - c. Review normal repair procedures.
    - d. Perform startup and shutdown procedures.
    - e. Review and perform the safety procedures.
    - f. Perform University approved practice maintenance and repair job(s) including mechanical and electrical adjustments and calibration and troubleshooting equipment problems.

END OF SECTION 01 79 00

**SECTION 01 81 13**  
**LEED® REQUIREMENTS**

*AS APPLIES*

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes general requirements and procedures for compliance with certain U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) New Construction (NC) v3.0 prerequisites and credits needed for the Project to obtain a minimum of LEED® Gold certification & a preferred LEED® Platinum certification.
- B. LEED® NC 3.0 requirements shall be followed in conjunction with requirements specified in all other Sections. Any discrepancies shall be referred to the University's Representative for clarification.
1. Other LEED® prerequisites and credits needed to obtain LEED® certification are dependent on material selections and may not be specifically identified as LEED® requirements. Compliance with requirements needed to obtain LEED® prerequisites and credits may be used as one criterion to evaluate substitution requests.
  2. Additional LEED® prerequisites and credits needed to obtain the indicated LEED® certification are dependent on the Architect's design and other aspects of the Project that are not part of the Work of the Contract.
  3. The General Contractor shall designate an onsite field staff person contact for all LEED® prerequisites and credit documentation, subcontractor supervision and submittal coordination.
    - a. The University's Representative will coordinate all General Contractor LEED® on-site field staff person for LEED® requirements.
  4. Documentation for LEED® prerequisites and credits must be submitted in the format required by the USGBC for review using LEED®-Letter Templates. Including all required credit audit documentation, completion of LEED® calculators, and LEED® credit templates. Refer to 1.6 of this section for a more detailed explanation of the LEED®-Online process and LEED® Construction Submittal.
  5. A copy of the LEED®-NC v3.0 reference guide should be purchased by the General Contractor and available on site at all times to accompany this specification. Additional information on LEED® and how to purchase copies of the LEED®-NC v3.0 reference guide and how to use LEED®-Letter Templates can be found at [www.usgbc.org](http://www.usgbc.org) and <https://leedonline.usgbc.org>
- C. Related Work:
1. All other sections where indicated.
  2. LEED® submittal status matrix

3. This project shall incorporate prototype campus-wide credits that were approved by the USGBC in March of 2007. The General Contractor shall be required to provide full credit documentation and back-up for each Prototype Credit, as required, as part of their Construction Submittal.

## 1.2 REFERENCE STANDARDS

- A. ASHRAE Guideline 0-2005 – The Commissioning Process
- B. ASHRAE Guideline 1-1996 -The HVAC Commissioning Process.
- C. ASHRAE Standard 90.1-2007 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
- D. ASHRAE Guideline 4-1993 - The Preparation of Operations and Maintenance Documentation for Building systems.
- E. ASHRAE Standard 62.1-2007 - Ventilation for Acceptable Indoor Air Quality.
- F. CRI - Carpet and Rug Institute Indoor Air Quality Green Label Testing Program.
- G. CARB - California Air Resources Board Suggested Control Measures for Architectural Coatings
- H. EPA Energy Star - Program Requirements for Roof Products.
- I. EPACT – Energy Policy Act of 1992
- J. FSC - Forest Stewardship Council (FSC) Guidelines for Certified Wood.
- K. GS 11 – Green Seal (VOC) Guidelines for Paints.
- L. SCAQMD Rule # 1168 –South Coast Air Quality Management District Adhesive and Sealant Applications.
- M. USGBC LEED® United States Green Building Council (USGBC) Leadership in Energy and Environmental Design Reference Guide.
- N. USGBC LEED® United States Green Building Council (USGBC) Leadership in Energy and Environmental Design Rating System for New Construction version 3.0.

## 1.3 DEFINITIONS

- A. Agrifiber Product: Products consisting of fibrous material derived from the agricultural industry and typically characterized by rapidly renewable characteristics. Such products may consist of wheat straw, sugar cane, and other agricultural crops.
- B. Adequate Ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of dust, fumes, vapors and gases.

- C. **Certificates of Chain-of-Custody:** Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by a Forest Stewardship Council (FSC) - accredited certification body to comply with FSC 1.2, "Principles and Criteria." Certificates shall include evidence that mill is certified for chain-of-custody by an FSC-accredited certification body. For more information go to [www.fscus.org](http://www.fscus.org).
- D. **Chain of Custody:** A tracking procedure to document the status of a product from the point of harvest, extraction, or recovery to the point of ultimate end use.
- E. **Chemical Waste:** Includes paints, adhesives, sealants, coatings, petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
- F. **Chlorofluorocarbons (CFCs):** Any of various halocarbon compounds consisting of carbon, hydrogen, chlorine, and fluorine, once used widely as aerosol propellants and refrigerants. Chlorofluorocarbons have been identified to cause depletion of the atmospheric ozone layer.
- G. **Construction and Demolition Waste:** Includes solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- H. **Construction IAQ Management Plan:** A document that outlines measures to minimize contamination in a building during construction and to flush the building of contaminants prior to occupancy.
- I. **Cost Basis:** A basis of calculation wherein the input values are in terms of monetary cost (US Dollar).
- J. **Environmental Pollution and Damage:** The presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances or the environment of neighboring buildings and environmental areas; or degrade the utility of the environment for aesthetic, cultural or historical purposes.
- K. **Hazardous Materials:** Includes pesticides, biocides, carcinogens, and "wet products" as listed by recognized authorities, such as the Environmental Protection Agency (EPA), International Agency for Research on Cancer (IARC), the State of California, and any special local requirements.
- L. **Heat Island Effect:** A condition wherein elevated temperatures are experienced in urban landscapes as a result of solar energy retention within constructed bodies. Principal bodies that contribute to the heat island effect include streets, sidewalks, parking lots, and buildings.
- M. **Infrared Emittance:** Parameter between 0 and 1 that indicates the ability of a material to shed infrared radiation.
- N. **Interior Final Finishes:** Materials and products that will be exposed at interior occupied spaces, including flooring, wall covering, finish carpentry, and ceilings.
- O. **LEED®:** Leadership in Energy & Environmental Design, version 2.2 Green Building Rating System for New Construction.

- P. Life Cycle Analysis (LCA): An informed decision making process that can be applied to building components, design strategies, and other measures associated with building alternatives. The LCA process considers all costs and benefits (economic, social, and environmental) over the course of the building's life.
- Q. Life Cycle Costing (LCC): A sub-component of the more general Life Cycle Analysis (LCA), LCC considers only economic costs over the course of the building's life. LCC is used to determine the best choice among mutually exclusive alternatives by summing the present value of all costs over the life of the alternative.
- R. Municipal Solid Waste Landfill: A permitted facility that accepts solid, non-hazardous waste such as household, commercial, and industrial waste, including construction and demolition waste.
- S. Packaged Dry Products: Materials and products that are installed in dry form and delivered to the site in the manufacturer's packaging, including carpets, resilient flooring, ceiling tiles, and insulation.
- T. Point of Extraction, Harvest, or Recovery: The geographic location where the material was extracted, harvested, or recovered.
- U. Point of Final Assembly: The geographic location where individual components are assembled into the product that is furnished and Installed by the tradesmen.
- V. Post-Consumer Material: Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of products, which can no longer be used for its intended purpose.
- W. Pre-Consumer Material: Material diverted from the waste stream during the manufacturing process (can also be considered post-industrial). Excluded is reutilization of materials such as rework, re-grind or scrape generated in a process and capable of being reclaimed within the same process that generated it.
- X. Post-Consumer Recycled Content: The percentage content of waste material to total material (weight basis) when waste material is derived from products or packaging which has been discarded by an individual, commercial enterprise, or other public or private entity after having fulfilled its intended application or use.
- Y. Post-Industrial Recycled Content: The percentage content of waste material to total material (weight basis) when waste material is generated as a by-product of an industrial process and which has properties significantly different than those of the original material and therefore, in its current form, cannot be recycled back through the same general process.
- Z. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer or post-industrial), or after consumer use (post-consumer).
  - 1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.



2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer or post industrial
  - AA. Recycling: The collection, reprocessing, marketing and use of materials that were diverted from the solid waste stream.
  - BB. Regionally Manufactured Materials: Materials that are manufactured within a radius of 500 miles from the Project location. Manufacturing refers to the final assembly of components into the building product that is installed at the Project site.
  - CC. Regionally Extracted, Harvested, or Recovered Materials: Materials that are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.
  - DD. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
  - EE. Volatile Organic Compounds (VOCs): Carbon compounds emitted by materials that participate in atmospheric photochemical reactions. VOC's are common in building products and are emitted over time through outgassing. Sources of VOC's may include solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywoods; and foam insulation. When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, and damage to the liver, kidneys, and central nervous system, and possibly cancer.
  - FF. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.
  - GG. Weight Basis: A basis of calculation wherein the input values are in terms of weight (US Pound).
  - HH. Wet Products: Materials and products installed in wet form, including paints, sealants, adhesives, and special coatings.

#### 1.4 GENERAL REQUIREMENTS

- A. Contractor shall designate a LEED® Representative, for the approval of the University's Representative. General Contractor's LEED® Representative shall be an individual responsible for implementation, coordination, and documentation of LEED® Credit Requirements specified herein. General Contractor's LEED® Representative shall attend all LEED® Certification meetings as stipulated in Part 1.5.A & B and shall be present on site at all times when work is in progress.
- B. The following table summarizes the credits that need full documentation from each Contractor as noted in this LEED® specification, 1.6 Submittals.

<b>LEED® Certification</b>	
<b>LEED® Reference</b>	<b>Point Description</b>
MR Credit 2	Construction Waste Management
MR Credit 4: PTC	Recycled Content Material
MR Credit 5: PTC	Local/Regional Materials
MR Credit 6: PTC	Rapidly Renewable Materials
MR Credit 7: PTC	Certified Wood
IEQ Credit 3.1 – 3.2: PTC	Construction IAQ Management Plan
IEQ Credit 4.1 – 4.4: PTC	Low-Emitting Materials

1.5 MEETINGS

- A. Contractor shall conduct LEED® Certification meetings as required with all subcontractors, in addition to those meetings outlined in Section 01311 Project Meetings.
  - 1. Contractor’s Project Manager
  - 2. University’s Representative & or University’s LEED® Coordinator
  - 3. Contractor’s LEED® Representative
  - 4. All other attendees designated by University’s Representative
  - 5. Subcontractor Representatives as appropriate to stage of work
- B. At a minimum, LEED® certification goals and issues shall be discussed at the following meetings:
  - 1. Preconstruction Meetings
  - 2. Progress Meetings
  - 3. Contractor Meetings
  - 4. Monthly Project LEED® Meetings. Meeting should be scheduled as a part of regularly scheduled job meetings on site.

1.6 SUBMITTALS

- A. Submittal Requirements for LEED® compliance are in addition to those submittal requirements specified elsewhere in the Specifications. Any discrepancies shall be referred to the University’s Representative for clarification. Submit LEED® Product Submittal Data Form with the following information.
  - 1. Provide actual material costs, excluding labor and equipment, for each material supplied for divisions 3-10. Specific Material cost data for individual components and materials (not including labor) will be required to be provided as part of some LEED® pre-requisite and credit requirements submittals.

2. Consistent numbers must be applied to various LEED® credits submittals requiring similar material cost data.
  3. If applicable, fill out MR Credit 4: Recycled Content information and attach documentation confirming post consumer and pre consumer recycled content.
  4. If applicable, fill out MR Credit 5: Regional Materials content information and attach documentation confirming location of product extracted, harvested or recovered, as well as manufactured within 500 mile of project site. Also provide map quest confirming distances.
  5. If applicable, fill out MR Credit 6: Rapidly Renewable Materials content information and attached documentation confirming its rapidly renewable content.
  6. If applicable, fill out MR Credit 7: Certified Wood Materials content information. Track certified wood purchases and retain associated COC (Chain of Custody) documentation. Collect copies of vendor invoices for each certified wood product. Maintain a list that identifies the percentage of certified wood in each purchase.
  7. If applicable, fill out IEQ Credit 4.1 through 4.4 Low Emitting Materials information and attach documentation confirming VOC limit, CRI Green Label Plus Certification No., Floor Score Certification, No added urea-formaldehyde resins or no urea-formaldehyde.
- B. Complete and submit all required support documentation to the university in format(s) required by the USGBC. Use Exhibit 30 of the contract documents, LEED Product Submittal Data Form, for all LEED submittals.
- C. With final project submittals provide the following:
1. All approved Substitution Request Forms related to this section.
- D. LEED® Action Plans: Provide preliminary submittals within 30 days of date established for the Notice to Proceed indicating how the following requirements will be met.
1. MR Credit 2: Comply with University's Waste Management Plan.
  2. MR Credit 4: List of proposed materials with recycled content.
    - a. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.
    - b. Indicate cost of all products and materials used regardless of recycled content for the purpose of comparison so as to ultimately derive a cost-based percentage of recycled content.
  3. MR Credit 5: List of proposed regionally extracted, processed, and manufactured materials.
    - a. Identify each regionally extracted, processed, and manufactured material, its source, and cost.
  4. MR Credit 6: List of proposed rapidly renewable materials:
    - a. Include statement, indicating costs for each product containing rapidly renewable materials.
  5. MR Credit 7.0: List of proposed certified wood products.

- a. Include statement, indicating costs for each product containing certified wood.
  - b. Include statement indicating total cost for wood-based materials used for Project, including non-rented temporary construction.
6. IEQ Credit 3.1: Construction indoor air quality management plan, during construction
  7. IEQ Credit 3.2: Construction indoor air quality manage plan, before occupancy
  8. IEQ Credits 4.1, 4.2, 4.3 & 4.4: Low Emitting Materials
- E. LEED® Progress Reports(Monthly):
1. Written narrative describing progress to date. If progress to date deviates from Plan, Contractor shall describe deviation and summarize proposed actions to be undertaken in order to meet LEED® Certification goal. Concurrent with each Application for Payment, submit reports and or calculations, per credit requirements, demonstrating compliance :
    - a. MR Credit 4: Recycled content.
    - b. MR Credit 5: Regionally manufactured materials and regionally extracted, harvested, or recovered materials.
    - c. MR Credit 6 Rapidly Renewable Materials.
    - d. MR Credit 7 Certified wood products.
    - e. IEQ Credits 3.1 and 3.2: Construction Indoor Air Quality Management (IAQ) plan: During Construction and Before Occupancy
    - f. IEQ Credit 4.1, 4.2, 4.3 & 4.4: Low Emitting Materials
  2. Within 14 calendar days of Project Completion, Contractor shall provide to University's Representative 2 copies of all LEED® required documentation demonstrating compliance with LEED® Certification requirements, including but not limited to, documentation provided during the submittal process.
- F. LEED® Documentation Submittals:
1. SS Credit 7.1: Product data showing the measured reflectance and emittance of each paving material installed on site to calculate Solar Reflectance Index (SRI), or the actual SRI for each paving material installed on site, or the default SRI from LEED® Reference Guide.
  2. SS Credit 7.2: Product data and manufacturer's catalog cuts highlighting that the roofing material complies with LEED® Solar Reflectance Index requirements.
  3. SS Credit 8: Product Data for interior and exterior lighting fixtures that stop direct-beam illumination from leaving the building site.
  4. WE Credit 3: Product Data for plumbing fixtures indicating water consumption. Specify plumbing fixtures, controlled by the Energy Policy Act of 1992, which reduce water use by (20 percent). Controlled fixtures include toilets, showerheads, lavatory faucets, kitchen faucets, and urinals. Include water use calculations equivalents for all the following abbreviations used:
    - a. gpf = gallons per flush
    - b. gpm = gallons per minute
    - c. gal/cycle = gallons per cycle

- d. psig = pounds per square inch of gauge
- 5. EA Prerequisite 3: Product Data for new HVAC equipment indicating absence of CFC refrigerants and phase-out plan to replace CFC refrigerants in HVAC&R systems with CFC-free refrigerants within the Construction Period.
- 6. EA Credit 4: Product Data for new HVAC equipment indicating absence of HCFC refrigerants, and for clean-agent fire-extinguishing systems indicating absence of HCFC and Halon.
- 7. MR Credit 2: Comply with University's Waste Management Plan.
- 8. MR Credit 4: Product Data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.
  - a. List total cost of all materials for the projects.
  - b. Submit required audit documentation:
    - 1) Manufacturer cut sheets, literature or letters highlighting the overall post-consumer and/or post-industrial recycled content percentages (by weight) of each product listed on the template.
    - 2) Materials invoices (showing costs) for each product listed on the template.
- 9. MR Credit 5: Product Data indicating location of materials extracted, processed & manufactured regionally.
  - a. Statement indicating cost and distance from manufacturer to Project for each regionally manufactured material.
  - b. Statement indicating cost and distance from point of extraction, harvest, or recovery to Project for each raw material used in regionally manufactured materials.
  - c. Calculations demonstrating that the project incorporates the required percentage of regional materials/products and showing their cost, and the total cost of all materials for the project [estimate can be generated by providing the total project value].
  - d. Submit required audit documentation:
    - 1) Manufacturer or vendor literature, cut sheets, letter stating address location of each material's final assembly site.
    - 2) Map (Yahoo Maps or equivalent) indicating distances from each location to the project site.
    - 3) Documentation of the cost/value of each material.
- 10. MR Credit 6: Provide a list, product data, and cost for each of the rapidly renewable materials on the project.
- 11. MR Credit 7: Provide a list, product data, and cost for each of the certified wood product materials on the project.
- 12. IEQ Credit 3.1:
  - a. Provide letter listing each air filter used during construction and at the end of construction. Include the MERV value, manufacturer name, and model number.

- b. Construction indoor air quality management plan.
  - c. Product Data for temporary filtration media.
  - d. Product Data for filtration media used during occupancy.
  - e. Construction Documentation: Six photographs at three different occasions during construction along with a brief description of the SMACNA approach employed, documenting implementation of the IAQ management measures, such as protection of ducts and on-site stored or installed absorptive materials.
  - f. Required audit documentation:
    - 1) Construction IAQ Management Plan addressing the SMACNA/ LEED® requirements.
    - 2) Manufacturer literature, cut sheets, or letters showing the MERV values of filtration media used (during construction and immediately before occupancy).
13. IEQ Credit 3.2: Provide requirements for items Option 1 or 2.
- a. Provide letter template confirming the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out..
  - b. Product Data for filtration media used during flush-out and during occupancy.
  - c. Report from testing and inspecting agency indicating results of IAQ testing and documentation showing conformance with IAQ testing procedures and requirements.
14. IEQ Credit 4.1: Product Data and material safety data sheets (MSDS) for adhesives and sealants used on the interior of the building indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).
- a. Provide letter or matrix listing the adhesives and sealants used in the building and declaring that they meet the noted requirements.
  - b. Provide required audit documentation:
    - 1) Cut sheets and Materials Safety Data Sheet (MSDS), or letter from the manufacturer for each adhesive/sealant used on the interior, with the VOC content (g/L) circled and indicating VOC content of each product used and indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).
    - 2) Summary table comparing credit VOC requirements and actual VOC levels for each product.
15. IEQ Credit 4.2:
- a. Provide letter or matrix listing all the paints and coatings used in the building and stating that they comply with the VOC and chemical component limits of Green Seal's GS-11 requirements.
  - b. Provide required audit documentation:
    - 1) Cut sheets, MSDS, or letter from the manufacturer for each interior paint, with the VOC content (g/L) circled. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).

- 2) Summary table comparing credit VOC requirements and actual VOC levels for each product.
16. IEQ Credit 4.3:
- a. Carpet: Provide letter or matrix listing all the carpet systems used in the building and stating that they comply with the VOC limits of the Carpet and Rug Institute's Green Label Indoor Air Quality Test Program.
    - 1) Provide required audit documentation:
      - a) Cut sheets, manufacturer literature or letter, or CRI Green Label literature stating that the carpet(s) meets the CRI Green Label IAQ test program criteria.
      - b) Documentation for installation adhesive, including printed statement of VOC content.
  - b. Hard Surface Flooring Products (resilient flooring, wood flooring, tile flooring, etc.): Provide letter or matrix listing all hard surface flooring products used in the building and stating that they comply with FloorScore standard and certified by an independent third-party. As an alternative, provide letter or matrix listing stating that at least 25 percent of non-carpet finished flooring is FloorScore-certified.
    - 1) Provide required audit documentation:
      - a) Cut sheets, manufacturer literature or letter, or FloorScore certification indicating compliance with FloorScore standard.
      - b) Documentation for installation adhesive, including printed statement of VOC content.
17. IEQ Credit 4.4:
- a. Provide letter or matrix listing all the composite wood and agrifiber products used in the building and stating that they contain no added urea-formaldehyde resins.
  - b. Provide required audit documentation
    - 1) Cut sheets or manufacturer literature or letters indicating the bonding agents for each composite wood and agrifiber material used in the project, showing that no added urea-formaldehyde resins were used in these products.
- G. All material submittals must include the following information on the cover of the submittal:
1. LEED® cover sheet see EXHIBIT 30 in division 1.
- H. Water Efficiency Product Data: Where the Specifications require data relating to water efficiency, submit:
1. Cut sheet or written affidavit from the manufacturer which shall include, but is not limited to, the following:
    - a. Conservation Specifications.
    - b. Demonstration that fixture complies with all applicable fixture performance requirements of the Energy Policy Act of 1992.
- I. Adhesives – For each adhesive applied on the interior of the Project, Contractor shall submit:

1. Cut Sheet.
  2. Material Safety Data Sheet (MSDS) highlighting compliance with VOC limits stipulated in Part 2 of this Section.
  3. An updated list of all adhesives applied on the interior of the Project.
- J. Ducts and HVAC Equipment – Contractor shall submit:
1. Construction Photographs demonstrating conformance with IAQ Construction Management Plan measures to insure protection of materials from moisture while stored on site. Construction photographs shall be time stamped and labeled with location by room number, and shall be taken weekly throughout those periods said materials are stored on site and installed.
- K. Sealants – For each sealant or sealant primer applied on the interior of the Project, Contractor shall submit:
1. Cut Sheet.
  2. Material Safety Data Sheet (MSDS) highlighting compliance with VOC limits stipulated in Part 2 of this Section.
  3. An updated list of all sealants and sealant primers applied on the interior of the Project
- L. Paints – For each paint product applied on the interior of the Project, Contractor shall submit:
1. Cut Sheet.
  2. Material Safety Data Sheet (MSDS) highlighting compliance with VOC limits and chemical component limits stipulated in Part 2 of this Section.
  3. An updated list of all paints applied on the interior of the Project
- M. Architectural Coatings – For each architectural coating applied on the interior of the Project, Contractor shall submit:
1. Cut Sheet.
  2. Material Safety Data Sheet (MSDS) highlighting compliance with VOC limits and chemical component limits stipulated in Part 2 of this Section.
  3. An updated list of all architectural coatings applied on interior of the Project
- N. Carpets - For each carpet product used on the interior of the Project, Contractor shall submit:
1. Cut sheet highlighting compliance with VOC requirements stipulated in Part 2 of this Section, or a letter from the manufacturer declaring compliance with VOC requirements stipulated in Part 2 of this Section.
  2. An updated list of all carpet products applied on the interior of the Project
- O. Agrifiber Products - For each agrifiber product used on the interior of the Project, Contractor shall submit:
1. Cut Sheet highlighted to show the non-urea formaldehyde resin or binder used in the products.



2. An updated list of all agrifiber products applied on the interior of the Project
- P. Composite Wood Products - For each composite wood product used on the interior of the Project, Contractor shall submit:
1. Cut Sheet highlighted to show the non-urea formaldehyde resin or binder used in the products.
  2. An updated list of all composite wood products applied on the interior of the Project.
- Q. Filtration Media - For each air-handling unit used on the Project, Contractor shall submit a cut sheet highlighting the Minimum Efficiency Reporting Value (MERV) of the installed filter. The installed filter MERV shall be in compliance with the approved Construction Indoor Air Quality Management Plan measures.

#### 1.7 SUBSTITUTIONS

- A. Requests for substitutions shall comply with the provisions of Section 01630 Product Options and Substitutions, with the following additional information required where LEED<sup>®</sup> requirements are specified.
1. No substitutions shall be submitted without the full projected LEED<sup>®</sup> impact documented.
- B. Where LEED<sup>®</sup> material emission limits are specified, the University shall reject proposed substitutions where:
1. Data for VOC's is not provided
  2. Emissions of VOC's exceed the material's specified VOC limit
  3. There is negative impact on overall system efficiency.
  4. The total number of LEED<sup>®</sup> credits will be compromised.
  5. The intent of the LEED<sup>®</sup> credits are compromised
- C. Substitutions that may affect LEED<sup>®</sup> certification requirements must be clearly stated as such.
- D. Comply with the requirements of Section 01630 Product Options and Substitutions except as follows:
1. Only (1) one request for substitution for each product will be considered. When substitution is not accepted, provide specified product.
  2. Prior to submitting detailed information required under Section 01630 Product Options and Substitutions, submit the following for initial review by the University's Representative.
    - a. Product data including manufactures names, address, and phone number.
    - b. Description of the differences of the proposed substitution from specified product. Include description of environmental advantages of proposed substitution over specified product.
    - c. Substituted products shall not be ordered or installed without written acceptance by the University's Representative.

3. Requests for Substitutions
  - a. Submit a separate request for each LEED® related product substitution.
  - b. Identify product by Specification Section and LEED® credit or credits, if applicable.
  - c. List similar projects using product, dates of installation, and names of General Contractor and Owner.
  - d. Give itemized comparison of proposed substitution with specified product, listing variations, and reference Specification section and Article number.
  - e. Include copy of Material Safety Data Sheet (MSDS) if applicable.
  - f. Give cost data comparing proposed substitution with specified product and amount of net change to Contract Sum. The cost data should be based on life cycle analysis for each affected product including annual energy consumption and maintenance costs.
  - g. State effect of substitution on construction schedule and changes required in other work of products.

#### 1.8 CREDIT REQUIREMENTS

- A. The following is a list of Credit Requirements for which the Contractor shall contribute LEED® certification documentation demonstrating compliance with the corresponding LEED® Credit Requirements.
- B. The following Credit Requirements for LEED® compliance are in addition to those requirements specified elsewhere in the Specifications.
- C. Erosion and Sedimentation Control: Contractor shall prevent loss of soil during construction.
  1. Contractor shall comply with the Universities Erosion Control Plan
- D. Reduced Site Disturbance: Contractor shall limit site disturbance including earthwork and clearing of vegetation to 40 feet beyond the building perimeter, 5 feet beyond primary roadway curbs, walkways, and main utility branch trenches, and 25 feet beyond previous paving areas that require additional staging areas in order to limit compaction in the paved area.
- E. Water Use Reduction: Contractor shall provide water fixtures, excluding those for irrigation, which use, in aggregate 40 percent less water than the water use baseline calculated for the Project by the design team.
  1. Throughout the work, Contractor shall comply with applicable submittal requirements stipulated in 1.6 of this specification.
  2. Within 14 calendar days of Project Completion, Contractor shall provide to University's Representative 2 copies of all LEED® required documentation demonstrating compliance with LEED® Certification requirements, including but not limited to, documentation provided during the submittal process.
- F. Building Systems Commissioning: General Contractor shall comply with the following requirements of LEED® Energy and Atmosphere Prerequisite 1 – Fundamental Building Systems Commissioning:

1. Refer to Section 01 91 00 Commissioning.
  2. University's Commissioning Plan.
- G. Additional Commissioning: Contractor shall comply with the following requirements of LEED® Energy and Atmosphere Credit 3 – Additional Commissioning:
1. Refer to Section 01 91 00 Commissioning.
- H. Ozone Depletion: Contractor shall meet the intent to reduce ozone depletion potential through the following.
1. General Contractor shall provide refrigeration equipment that does not contain or make use of hydrochlorofluorocarbons (HCFC's).
  2. General Contractor shall provide fire suppression systems that do not contain or make use of Halon.
- I. Construction Waste Management: Contractor shall comply with University's Site Waste Management Plan.
- J. Recycled Content: Contractor shall use materials with recycled-content so that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 20 percent of the total value of the materials in the project. (Mechanical and electrical components shall not be included in this calculation).
- K. Local and Regional Materials - Manufacturing: Contractor shall provide a minimum of 20 percent (cost basis) of project materials that are extracted, processed, and manufactured within a radius of 500 miles of the project.
- L. Rapidly Renewable Materials: Contractor shall provide a minimum of 2.5% (cost basis) of rapidly renewable materials or products harvested within a ten-year cycle or shorter.
- M. Certified Wood: Contractor shall provide a minimum of 50% (cost basis) of all new non-salvaged wood-based materials that are certified in accordance with the Forest Stewardship Council (FSC) guidelines for wood building components. Certified wood-based components may include those stipulated in Part 2.
- N. Construction Indoor Air Quality Management Plan: Contractor shall develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and preoccupancy phases of Project buildings.
1. Contractor shall submit to University's Representative 2 copies of a Construction IAQ Management Plan within 14 calendar days of Notice to Proceed. Plan shall include, but not be limited to, the following:
    - a. Provision to meet the five requirements of SMACNA IAQ Guideline for Occupied Buildings Under Construction, 2<sup>nd</sup> Edition 2007, ANSI/SMACNA 008-2008.
    - b. Provision to protect stored on-site or installed absorptive materials from moisture damage. This shall include a description of:
      - 1) Storage of materials on elevated platforms, under cover, and in a dry location

- 2) Secure coverage of the tops and sides of material with waterproof sheeting if materials are not stored in an enclosed location.
- c. Provision to protect HVAC equipment during construction. This shall include a description and commitment to:
  - 1) Shut down the return side of the HVAC system during heavy construction or demolition and cover return air openings air tight to prevent introduction of contaminants.
  - 2) Provide temporary filters that shall be replaced with new media prior to occupancy if the HVAC system is operated during heavy construction.
- d. Provision to take Construction Photographs demonstrating conformance with the approved Construction Indoor Air Quality Management Plan measures to insure protection of materials and air-handling equipment from moisture while stored on site.
  - 1) A minimum of 6 Construction Photographs shall be taken on three different occasions during Construction for a total minimum of 18. Construction photographs shall be time stamped and shall be taken during those periods' absorptive materials and HVAC equipment is stored on site. Refer to Part 2 for a list of absorptive materials.
  - 2) Construction Photographs shall include identification of the SMACNA approach featured by each photograph.
  - 3) General Contractor shall submit Construction Photographs to the University's Representative for approval.
- e. Provision to utilize outdoor air filtration media with a minimum MERV of 13 throughout the construction and preoccupancy phases of Project.
- f. For air handlers, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by ASHRAE 52.2-1999.
- g. Provision to replace all filtration media immediately prior to occupancy. Conduct flush-out with new MERV 13 filtration media, and after flush-out, replace with new MERV 13 filtration media, except the filters solely processing outside air.
- h. Provision to conduct a minimum two-week building flush-out with new filtration media at 100 percent outside air after construction ends and prior to occupancy.

**OR**

- i. Provision to conduct a baseline indoor air quality testing procedure consistent with current EPA protocol for Environmental Requirements, Baseline IAQ and Materials.
2. Within 14 calendar days of Project Completion, Contractor shall submit to University's Representative a letter template, which shall include, but not be limited to:
    - a. A listing of filtration media and corresponding MERV used during construction and installed at the end of construction.
    - b. A minimum of 18 Construction photographs as per the specified Construction IAQ Management Plan requirements.
    - c. A written narrative describing the building flush out procedures implemented (if applicable).

- d. Flush-out Start Date for each building (if applicable).
  - e. Flush-out End Date for each building (if applicable).
- O. Low –Emitting Materials – Adhesives and sealants, paint, carpet systems, composite wood and agrifiber products applied on the interior of the building shall comply with the product requirements stipulated in Part 2 and applicable submittal requirements stipulated in Part 1.
- 1. General Contractor shall submit to University’s Representative 2 copies of a LEED® Certification Progress Report each month throughout the work. Report shall include, but not be limited to, the following:
    - a. Requirement in 1.6.F of this section.
- P. Low –Emitting Materials – Adhesives and Sealants: Interior adhesives and sealants shall comply with the VOC limits of SCAQMD Rule #1168.
- Q. Low –Emitting Materials - Paint: Interior paints and coatings shall comply with the VOC and chemical component limits of Green Seal GS-11.
- R. Low –Emitting Materials - Carpet: Interior carpet products shall comply with the CRI Green Label Indoor Air Quality Test Program
- S. Low –Emitting Materials - Wood: Interior Composite wood and interior agrifiber products shall contain no added urea-formaldehyde resins.
- T. The following table lists all of the LEED® credits that shall be implemented and documented for the project to achieve a LEED® Gold certification & preferably Platinum. The list notes where the General Contractor must track and submit full documentation per LEED®-NC Certification Requirements. These credits are designated “PTC”.

<b>LEED® Certification</b>	
<b>LEED® Reference</b>	<b>Point Description</b>
*SS Prerequisite: PTC	Construction Activity Pollution Prevention
*SS Credit 4.1	Alternative Transportation
SS Credit 4.2	Bike Security Changing/Shower Facilities
SS Credit 4.3	Alternative Transportation - Low-Emitting and Vehicles
*SS Credit 4.4	Carpool/Parking Capacity
*SS Credit 5.2	Reduce Site Disturbance
*SS Credit 6.1	Storm Water Management
*SS Credit 6.2	Storm Water Management Treatment
SS Credit 7.2: PTC	Heat Island Effect, Roof

<b>LEED® Certification</b>	
<b>LEED® Reference</b>	<b>Point Description</b>
*SS Credit 8:PTC	Light Pollution Reduction
*WE Credit 1:PTC	Water Efficient Landscaping
WE Credit 3:PTC	Water Efficiency
EA Prerequisite 1 – 3:PTC	Energy Design
EA Credit 1:PTC	Optimize Building Energy Performance
EA Credit 3:PTC	Additional Commissioning
EA Credit 4:PTC	Elimination of HCFC's & Halon
EA Credit 5:PTC	Measurement and Verification
MR Prerequisite 1:PTC	Storage and Collection of Recyclables
MR Credit 2: PTC	Waste Management Plan
MR Credit 4: PTC	Recycled Content Material
MR Credit 5: PTC	Local/Regional Materials
MR Credit 7: PTC	Certified Wood
IEQ Prerequisite 1	Minimum IAQ Performance
*IEQ Prerequisite 2	Environmental Tobacco Smoke Control
IEQ Credit 1	Carbon Dioxide Monitoring
IEQ Credit 2	Increased Ventilation
IEQ Credit 3.1 – 3.2: PTC	Construction IAQ Management Plan
IEQ Credit 4.1 – 4.4: PTC	Low-Emitting Materials
IEQ Credit 5:PTC	Indoor Chemical & Pollutant Source Control
IEQCredit 6.1	Controllability of Systems, Lighting
IEQ Credit 6.2	Controllability of Systems, Thermal Comfort
IEQ Credit 7.1 – 7.2	Thermal Comfort
*ID Credit 1.1	Exhibit
*ID Credit 1.2	Open Space
ID Credit 1.3	Green Cleaning
ID Credit 1.4:PTC	Exceptional Water Savings
*ID Credit 2.0	LEED® Accredited Professional
RP Credit SSc4.1	Regional Priority Credit
RP Credit WEc1.1	Regional Priority Credit

<b>LEED® Certification</b>	
<b>LEED® Reference</b>	<b>Point Description</b>
RP Credit WEc3 (40%)	Regional Priority Credit
RP Credit EAc2 (1%)	Regional Priority Credit

\* Prototype Credits that are part of UC Merced’s campus wide sustainability plan.

## PART 2 - PRODUCTS

### 2.1 UNAUTHORIZED MATERIALS

- A. Materials and products required for work of this section shall not contain unauthorized materials including, but not limited to, the following:
1. Asbestos
  2. Polychlorinated biphenyls (PCB)
  3. Other hazardous materials identified by the University.
  4. Urea formaldehyde

### 2.2 LOW-EMITTING MATERIALS

- A. Credit IEQ 4.1: Adhesives, Sealants and Sealant Primers must comply with South Coast Air Quality Management District (SCAQMD) Rule #1168. Volatile organic compound (VOC) limits listed in the table below correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.
1. Wood Glues: 30 g/L.
  2. Metal to Metal Adhesives: 30 g/L.
  3. Adhesives for Porous Materials (Except Wood): 50 g/L.
  4. Subfloor Adhesives: 50 g/L.
  5. Plastic Foam Adhesives: 50 g/L.
  6. Carpet Adhesives: 50 g/L.
  7. Carpet Pad Adhesives: 50 g/L.
  8. VCT and Asphalt Tile Adhesives: 50 g/L.
  9. Cove Base Adhesives: 50 g/L.
  10. Gypsum Board and Panel Adhesives: 50 g/L.
  11. Rubber Floor Adhesives: 60 g/L.
  12. Ceramic Tile Adhesives: 65 g/L.

13. Multipurpose Construction Adhesives: 70 g/L.
14. Fiberglass Adhesives: 80 g/L.
15. Structural Glazing Adhesives: 100 g/L.
16. Wood Flooring Adhesive: 100 g/L.
17. Contact Adhesive: 80 g/L.
18. Special Purpose Contact Adhesive: 250 g/L.
19. Structural Wood Member Adhesive: 140 g/L.
20. Sheet Applied Rubber Lining Operations: 850g/L.
21. Plastic Cement Welding Compounds: 50 g/L.
22. ABS Welding Compounds: 4325 g/L.
23. CPVC Welding Compounds: 490 g/L.
24. PVC Welding Compounds: 510 g/L.
25. Adhesive Primer for Plastic: 550 g/L.
26. Architectural Sealants: 250 g/L.
27. Nonmembrane Roof Sealants: 300 g/L.
28. Roadway Sealants: 250 g/L.
29. Single-ply Roof Membrane Sealants: 450 g/L.
30. Other Sealants: 420 g/L.
31. Sealant Primers for Nonporous Substrates: 250 g/L.
32. Sealant Primers for Porous Substrates: 775 g/L.
33. Other Sealants Primers: 750 g/L.

B. Credit IEQ 4.2: Paints and coatings used on the interior of the building (i.e., inside of the weatherproofing system and applied on-site) must comply with the following criteria as applicable to the project scope.

1. Architectural paints and coatings applied to interior walls and ceilings must not exceed the volatile organic compound (VOC) content limits established in Green Seal Standard GS-11, Paints, 1st Edition, May 20, 1993.
2. Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates must not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, 2nd Edition, January 7, 1997.
3. Clear wood finishes, floor coatings, stains, primers, and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.
4. Flat Paints and Coatings: VOC not more than 250 g/L.
5. Non-Flat Paints and Coatings: VOC not more than 250 g/L.



6. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
7. Restricted Components: Paints and coatings shall not contain any of the following:
  - a. Acrolein.
  - b. Acrylonitrile.
  - c. Antimony.
  - d. Benzene.
  - e. Butyl benzyl phthalate.
  - f. Cadmium.
  - g. Di (2-ethylhexyl) phthalate.
  - h. Di-n-butyl phthalate.
  - i. Di-n-octyl phthalate.
  - j. 1,2-dichlorobenzene.
  - k. Diethyl phthalate.
  - l. Dimethyl phthalate.
  - m. Ethylbenzene.
  - n. Formaldehyde.
  - o. Hexavalent chromium.
  - p. Isophorone.
  - q. Lead.
  - r. Mercury.
  - s. Methyl ethyl ketone.
  - t. Methyl isobutyl ketone.
  - u. Methylene chloride.
  - v. Naphthalene.
  - w. Toluene (methylbenzene).
  - x. 1,1,1-trichloroethane.
  - y. Vinyl chloride.

Coating	Ceiling Limit*	Current Limit	Effective Date					
			1/1/03	1/1/04	1/1/05	7/1/06	7/1/07	7/1/08
Bond breakers	350							
clear Wood finishes - Varnish - sanding sealers - Lacquer	350 350 350 680	550			275	275 275		
clear brushing lacquer	680				275			
concrete-curing compounds	350						100	
concrete-curing compounds for roadways and bridges**	350							
Dry-fog coatings	400						150	
fire-proofing exterior coatings	450	350						
fire-retardant coatings*** - clear - Pigmented	650 350							

flats	250	100						50
floor coatings	420		100					50
Graphic arts (sign) coatings	500							
industrial maintenance (im) coatings	420			250		100		
High temperature im coatings	420		420			100		
Zinc-rich im primers	420		340			100		
Japans/faux finishing coatings	700	350						
Magnesite cement coatings	600	450						
Mastic coatings	300							
Metallic Pigmented coatings	500							
Multicolor coatings	420	250						
nonflat coatings	250	150				50		
nonflat high gloss	250		150				50	
Pigmented lacquer	680	550			275			
Pretreatment wash primers	780		420					
Primers, sealers, undercoaters	350		200			100		
Primers, sealers, undercoaters	350		200			100		
Quick-dry enamels	400		250			150	50	
Quick-dry primers, sealers, undercoaters	350		200			100		
Recycled coatings			250					
Roof coatings	300		250		50			
aluminum roof coatings	500				100			
Roof primers, bituminous	350		350					
Rust: preventive coatings	420		400			100		
shellac								
- clear	730							
- Pigmented	550							
specialty primers	350					250	100	
stains	350		250				100	
- interior	250							
swimming pool coatings								
- Repair	650							
- other	340		340					
traffic coatings	250	150					100	
Waterproofing sealers	400		250			100		
Waterproofing concrete, masonry sealers	400					100		
Wood preservatives - Below-ground	350							
other	350							
* the specified limits remain in effect until revised.								
** Does not include compounds used for curbs and gutters, sidewalks, islands, driveways, and other miscellaneous concrete areas.								
*** the fire-retardant coating category was eliminated on January 1, 2007, and subsumed by the coating category for which it was formulated.								

- C. Credit IEQ 4.3: All carpet installed in the building interior must meet the testing and product requirements of the Carpet and Rug Institute Green Label Plus program. All carpet cushion installed in the building interior must meet the requirements of the Carpet and Rug Institute Green Label1 program. All hard surface flooring must be certified as compliant with the FloorScore2 standard (current as of the date of this rating system, or more stringent version) by an independent third-party. Flooring products covered by FloorScore include vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring and wall base.
- D. Credit IEQ 4.4: Composite wood and agrifiber products used on the interior of the building (i.e., inside the weatherproofing system) must contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies must not contain added urea-formaldehyde resins.

### 2.3 SEALANTS

- A. All interior sealants and sealant primers shall comply with the VOC limits established by South Coast Air Quality Management District (SCAQMD) Rule 1168, effective July 1, 2005 and amended January 7, 2005.

### 2.4 PAINTS

- A. All interior paints shall comply with the VOC and chemical component limits established by Green Seal GS-11, Paints, 1st Edition, May 20, 1993; Green Seal Standard GC-03, Anti-Corrosive Paints, 2nd Edition, January 7, 1997; and South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.

### 2.5 ARCHITECTURAL COATINGS

- A. All site-applied interior architectural coatings shall comply with the VOC and chemical component limits of CARB Suggested Control Measure for Architectural Coatings.

### 2.6 CARPET SYSTEMS

- A. All carpet products applied on the interior of the Project shall comply with the VOC limit established by the Carpet and Rug Institute (CRI) Green Label Indoor Air Quality Test Program.

### 2.7 WOOD AND WOOD PRODUCT

- A. Certified wood products may include framing, flooring finishes, furnishings, veneers and non-vented temporary construction applications such as bracing, concrete formwork, and pedestrian barriers.

### 2.8 COMPOSITE WOOD PRODUCTS

- A. Composite wood products shall contain no added urea-formaldehyde resins.

### 2.9 AGRIFIBER PRODUCTS

- A. Agrifiber products shall contain no added urea-formaldehyde resins.

### 2.10 ABSORPTIVE MATERIALS

- A. Absorptive Materials shall include, but not be limited to:
  1. Filtration media
  2. Acoustical and thermal insulation
  3. Lined ductwork
  4. Masonry units
  5. Lumber
  6. Finished architectural woodwork

7. Acoustical Ceiling Tiles

PART 3 - EXECUTION

3.1 CONSTRUCTION VENTILATION AND PRECONDITIONING

- A. General Contractor shall execute the approved Construction IAQ Management Plan as specified in this Section.
- B. During construction General Contractor shall meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines For Occupied Buildings Under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3).
- C. Temporary Construction Ventilation: General Contractor shall Maintain sufficient temporary ventilation of areas where materials are being used that emit VOC's, and maintain ventilation continuously during installation, and until emissions dissipate after installation. If continuous ventilation is not possible via the building's HVAC system(s) then ventilation shall be supplied via open windows and temporary fans, sufficient to provide no less than three air changes per hour. General Contractor shall ensure that:
  - 1. The period after installation shall be sufficient to dissipate odors and elevated concentrations of VOCs. Where no specific period is stated in these Specifications, a time period of 72 hours shall be used.
  - 2. All areas shall be vented directly to outside. Areas shall not be vented to other enclosed areas.
- D. During dust producing activities (e.g. drywall installation and finishing) ventilation system shall be off, and openings in supply and return HVAC system shall be protected from dust infiltration. Provide temporary ventilation as required.
- E. Preconditioning: Prior to installation, General Contractor shall allow products which have odors and VOC emissions to off-gas in dry, well-ventilated space outside of building for 14 calendar days, in order to allow for reasonable dissipation of odors and emissions.

3.2 SEQUENCING

- A. Environmental Issues: General Contractor shall complete all interior finish material installation no less than 14 days prior to Substantial Completion to allow for building flush out. Submit notification to University's Representative when all interior finish material installation is complete, highlighting the date of completion.

3.3 FIELD QUALITY CONTROL

- A. A. Building Flush Out: Prior to Substantial Completion, General Contractor shall flush out building continuously (i.e. 24 hours per day, 7 days per week) using 100 percent outside air at standard operational set-point temperatures for at least 14 calendar days. Conduct flush-out with new MERV 13 filtration media, and after flush-out, replace with new MERV 13 filtration

media, except the filters solely processing outside air. For air handlers, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by ASHRAE 52.2-1999. If interruptions of more than 4 hours are required for testing and balancing purposes, extend flush out period by a minimum of 1 day.

1. When touch-up work is performed, General Contractor shall provide temporary construction ventilation during installation and extend building flush out by a minimum of 4 days after touch-up installation is complete.
2. Return ventilation system to normal operation following flush-out period to minimize energy consumption.
3. Replace all outside air filtration media prior to occupancy. Filtration media shall have a MERV of 13 as determined by ASHRAE 52.2-1999.

- B. IAQ Testing: If Building Flush Out is not undertaken, Contractor shall conduct a baseline indoor air quality testing procedure consistent with current EPA protocol for Environmental Requirements, Baseline IAQ and Materials.

### 3.4 PROTECTION

- A. Protect stored on-site and installed absorptive materials from moisture damage. Where absorptive materials not intended for wet applications are exposed to moisture, immediately remove from site and dispose of properly.
- B. Protect installed materials using methods that do not support growth of molds and mildews.
1. Immediately remove from site and properly dispose of materials showing signs of mold and signs of mildew, including materials with moisture stains.
  2. Replace materials showing signs of mold and mildew with new, undamaged materials.
  3. Ducts: Seal ducts during transportation, delivery, and construction to prevent accumulation of construction dust and construction debris inside ducts.
- C. Ducts: Seal ducts during transportation, delivery, and construction to prevent accumulation of construction dust and construction debris inside ducts.

END OF SECTION 01 81 13

**SECTION 01 91 00  
COMMISSIONING**

*AS APPLIES*

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Work included in this section: Oversight, coordination, and documentation of the following:
1. Commissioning of selected systems and equipment specified under Division 13 Special Construction.
  2. Commissioning of selected systems and equipment specified under Division 14 Conveying Systems
  3. Commissioning of selected systems and equipment specified under Division 21 Fire Suppression
  4. Commissioning of systems and equipment specified under Division 22 Plumbing
  5. Commissioning of systems and equipment specified under Division 23 Heating, Ventilating, and Air-Conditioning (HVAC)
  6. Commissioning of systems and equipment specified under Division 26 Electrical
  7. Commissioning of systems and equipment specified under Division 27 Communications
  8. Commissioning of systems and equipment specified under Division 28 Electronic Safety and Security

1.2 RELATED SECTIONS AND REQUIREMENTS

- A. Requirements of Division 1 General Requirements apply to all work in this section.
- B. Related Sections:
1. Section 01 79 00 Training.
  2. Section 14 24 00 Hydraulic Elevators
  3. Section 21 12 00 Standpipes and Hose Valves
  4. Section 21 13 00 Fire Sprinklers
  5. Section 22 11 16 Domestic Water Piping
  6. Section 22 13 16 Sanitary Waste and Vent Piping
  7. Section 22 14 16 Storm Drainage Piping
  8. Section 22 16 00 Plumbing Specialties
  9. Section 22 35 00 Domestic Water Heat Exchangers
  10. Section 22 35 01 Domestic Water Heat Exchangers
  11. Section 22 40 00 Plumbing Fixtures
  12. Section 22 47 00 Drinking Fountains and Water Coolers

13. Section 23 05 13 Motors and Controllers
14. Section 23 05 16 Piping Specialties
15. Section 23 05 23 Valves
16. Section 23 21 12 Heating and Cooling Piping
17. 23 21 13 Exposed Hydronic Piping, Valves and Accessories (Utilities)
18. Section 23 21 23 Pumps
19. Section 23 31 13 Ducts
20. Section 23 34 00 Fans
21. Section 23 33 00 Duct Accessories
22. Section 23 34 00 Fans
23. Section 23 36 00 Air Terminal Units
24. Section 23 37 00 Air Outlets and Inlets
25. Section 23 40 00 Air Cleaning Devices
26. Section 23 73 23 Air Handling Units and Coils
27. Section 23 97 00 Mechanical Commissioning
28. Section 26 08 00 Commissioning of Electrical Systems ( Utilities)
29. Section 26 97 00 Electrical System Commissioning.
30. Section 23 90 33 EMCS Commissioning.

### 1.3 GENERAL

- A. Building Commissioning is a quality assurance process that has as its goal that all systems perform interactively and according to design intent under the full range of expected operating conditions. The Contractor shall ensure that all systems are fully commissioned and that commissioning is fully documented as specified in this Section.
- B. Commissioning Team. The Commissioning Team for the construction and post-construction period shall include:
  1. Contractor Members:
    - a. Commissioning Coordinator (see paragraph 1.3C).
    - b. Division 13, Division 14, Division 21, Division 22, Division 23, Division 26, Division 27 and Division 28 project managers plus key subcontractors where appropriate, including the Test & Balance Subcontractor.
  2. University Members:
    - a. University's Representative.
    - b. University plant operator/engineer (during the functional testing and training phases only).
    - c. University's Design Professional.
- C. Commissioning Coordinator:
  1. The Contractor shall procure and provide the services of the Commissioning Coordinator.
  2. Qualifications:
    - a. Cumulative of eight or more years experience in one or more of the following for projects of similar size and complexity:
      - 1) Building mechanical or electrical system commissioning.

- 2) Building mechanical or electrical system construction project management.
- 3) Building mechanical or electrical system coordination services for a Contractor.
- 4) Building mechanical system test & balance project management.
- b. Five or more years of experience with project management software such as MS Project or equal.
- c. Either an employee of or direct subcontractor to the General Contractor.
3. Services to be provided: See paragraph 3.1.

#### 1.4 SUBMITTALS

- A. See Section 01 33 23 Shop Drawings, product Data and Samples.
- B. Commissioning Coordinator Qualifications. Prior to any commissioning work taking place, submit Commissioning Coordinator's resume listing applicable experience for review and approval by the University's Representative.
- C. Equipment submittals and shop drawings:
  1. See Divisions 13, 14, 21, 22, 23, 26, 27 and 28
- D. Commissioning Reports:
  1. Start-up and Factory Tests.
    - a. See Divisions 13, 14, 21, 22, 23, 26, 27 and 28 for requirements.
    - b. Compile after all equipment has been started and submit five copies to University's Representative for review and approval.
  2. Pre-functional Tests:
    - a. See Divisions 13, 14, 21, 22, 23, 26, 27 and 28 for checklists.
    - b. Compile after all equipment pre-functional forms have been completed and submit five copies to University's Representative for review and approval.
  3. Test and Balance Reports.
    - a. See Section 15950 Testing, Adjusting and Balancing for content and quantity of reports.
    - b. Include only those reports developed after spot checks and associated rebalancing have been completed.
  4. Functional Tests:
    - a. See Division 22,23, 26 and 28 for forms.
    - b. Compile after all tests have been completed and submit five copies to University's Representative for review and approval.
  5. Demonstration Tests:
    - a. Tests will be a subset of Functional Tests and will be identified one day prior to the Tests by the University's Representative. See Divisions 22,23, 26 and 28 for expected time required.
    - b. Compile after all tests have been completed and submit five copies to University's Representative for review and approval.
  6. Trend Reviews:



- a. Data to be provided to University's Representative in electronic format specified in Division 22,23, 26 and 28.
7. Final Report:
  - a. Include the following completed documentation:
    - 1) System/Equipment Matrix (see Paragraph 3.1A.2).
    - 2) Start-up and Factory Tests.
    - 3) Test and Balance Reports.
    - 4) Pre-functional test documentation.
    - 5) Functional test documentation.
  - b. Format and Procedure:
    - 1) Submit two draft copies for review and comment by University's Representative, who will return one copy.
    - 2) Make changes noted on returned copy and compile final draft.
    - 3) Submit Final Report in the following format:
      - a) Five bound copies.
      - b) One electronic copy on CD in format readable by software on Operator's Workstation, as specified in Division 22,23, 26 and 28. Reports may be scanned from paper copies but word-searchable electronic versions preferred.
      - c) One electronic copy as above copied onto the Operator's Workstation server.
8. Operations and Maintenance Manuals: See Divisions 13, 14, 21, 22, 23, 26, 27 and 28.
9. Training manuals: See Section 01664 Training and Divisions 13, 14, 21, 22, 23, 26, 27 and 28.
10. Re-commissioning Management Manual
  - a. Prepare and submit 1 copy of a Re-commissioning Management Manual containing the following information organized into a 3-ring binder with tabbed sections as listed.
    - 1) Design Intent. (Material provided by the University's Representative)
      - a) Final version of the owner's requirements and design basis narratives, including brief descriptions of each system.
    - 2) Controls. (Material provided by Division 17 General Contractor.)
      - a) As-built sequences of operation for all equipment.
      - b) Controls drawings
      - c) A list of time of day schedules and a schedule to review them for relevance and efficiency.
      - d) A list of all user adjustable setpoints and reset schedules with rationale for their selection and range.
    - 3) Energy and Water Efficiency Measures. (Material provided by University Representative.)
      - a) A description and rationale for all energy and water saving features and strategies with operating and instructions.

- b) Guidelines for establishing and tracking benchmarks for whole building energy use and equipment efficiencies of cooling, heating, and service hot water equipment.
- 4) Seasonal Issues. Not applicable to UC Merced projects.
- 5) Calibration. (Material provided by Division 22,23, 26 and 28 )
  - a) Recommendations for recalibration frequency of sensors and devices by type and use.
- 6) Continuing Commissioning Plan (Material provided by University Representative.)
  - a) Recommended frequency for re-commissioning by equipment type or system, with reference to tests conducted during initial commissioning.

## PART 2 PRODUCTS (NOT USED)

## PART 3 EXECUTION

### 3.1 COMMISSIONING COORDINATION

#### A. Commissioning Coordinator shall:

1. Prepare schedule of commissioning activities specified in Divisions 13, 14, 21, 22, 23, 26, 27 and 28 including:
  - a. Submission of equipment submittals and shop drawings
  - b. Equipment start-up and pre-functional tests
  - c. Factory start-up and inspection of equipment
  - d. Test and balance
  - e. EMCS calibration and start-up
  - f. Electrical system functional testing
  - g. EMCS system functional testing
  - h. EMCS demonstration tests (to University's Representative)
  - i. EMCS trending initiation
  - j. EMCS trend review data distribution (to University's Representative)
  - k. Submission of operations and maintenance manuals
  - l. Development and submission of record drawings
  - m. Training of University personnel
  - n. Preparation of Final Commissioning Report
2. Prepare a system and equipment commissioning matrix with a line item for each piece of equipment and each subsystem specified to be commissioned under Division 13, 14, 21, 22, 23, 26, 27 and 28. The System/Equipment matrix shall include for each line item:
  - a. Equipment tag or name.
  - b. Service.
  - c. Location.
  - d. Responsible subcontractor.
  - e. The due date and actual completion date for the following (where applicable):
    - 1) Submittals.
    - 2) Shop drawings.
    - 3) Factory test.

- 4) Equipment set.
  - 5) Preliminary operations and maintenance manuals indicating start-up procedures.
  - 6) Pre-start verification.
  - 7) Equipment start-up.
  - 8) Pre-functional test.
  - 9) Test and balance.
  - 10) Functional performance test.
  - 11) Operations and maintenance manuals.
  - 12) Record drawings.
  - 13) Training.
3. Complete the commissioning matrix as activities are completed, and distribute to Commissioning Team at least one day prior to each Team meeting or when requested by University's Representative.
  4. Schedule and chair meetings of Commissioning Team:
    - a. Commissioning Team shall be notified of all meeting times and locations at least two weeks prior to the meeting.
    - b. Contractor Members of Commissioning Team shall attend all scheduled meetings; University Members of Commissioning Team shall be invited to all meetings and attend where they feel their attendance is beneficial or where required to witness demonstration tests and training.
    - c. Prior to start of construction until 30 days prior to start-up of any equipment:
      - 1) One scoping meeting shall occur prior to any Division 13, 14, 21, 22, 23, 26, 27 and 28 submissions of equipment submittals or shop drawings. Meeting shall include a discussion of preliminary commissioning schedule and roles of each Team member.
      - 2) Bi-monthly progress meetings (more frequent if required in the judgment of the Commissioning Coordinator; less frequent if requested by the Commissioning Coordinator and approved by the University's Representative).
    - d. 30 days prior to start-up of any equipment through start of functional testing: Bi-weekly progress meetings (more frequent if required in the judgment of the Commissioning Coordinator; less frequent if requested by the Commissioning Coordinator and approved by the University's Representative).
    - e. During functional testing until their completion: Weekly progress meetings (more frequent if required in the judgment of the Commissioning Coordinator; less frequent if requested by the Commissioning Coordinator and approved by the University's Representative).
    - f. After functional testing until all commissioning documentation is complete: Meetings as required in the judgment of the Commissioning Coordinator.
  5. Supervise pre-functional and functional testing performed by Contractor's Members of Commissioning Team:
    - a. Coordinate tests among Team Members and schedule tests so that required work for each trade is complete prior to tests being performed.

- b. Ensure that tests are successfully completed by reviewing test forms for completeness and positive response, and ensuring forms have been signed by the Team Member who performed the work. (The Commissioning Coordinator is not required to perform or witness any pre-functional or functional tests.)
    - c. Compile test documentation and submit to the University's Representative for review and approval.
    - d. Coordinate and ensure resolution of punchlists from University's Representative.
  6. Supervise and witness demonstration tests performed by Contractor's Members of Commissioning Team, also witnessed by the University's Members of the Commissioning Team:
    - a. Compile test documentation and submit to the University's Representative for review and approval.
    - b. Coordinate and ensure resolution of punchlists from the University's Representative.
    - c. Coordinate retesting where required until tests are successfully completed.
  7. Coordinate EMCS post-construction and post-occupancy trend reviews with Division 22,23, 26 and 28:
    - a. Ensure trends are initiated as specified in Division 17. The post-construction review will occur directly after functional testing is complete (see Division 17 for exact time period). Two post-occupancy reviews will occur, one after approximately 6 months of operation, and one approximately two months prior to the end of the warranty period.
    - b. Ensure data is transmitted in required format to University's Representative.
    - c. Coordinate and ensure resolution of trend review punchlists from the University's Representative.
    - d. Coordinate retesting where required until tests are successfully completed.
  8. Maintain a master deficiency and resolution log developed from punchlists, including status and date of resolution of each deficiency. Provide the University's Representative with regular progress reports.
  9. Coordinate and confirm completion of training of University personnel as specified under Divisions 13, 14, 21, 22, 23, 26, 27 and 28.
  10. Compile and submit Final Commissioning Report.
  11. Compile and submit the Re-commissioning Management Manual.

### 3.2 REMEDIAL WORK

- A. Remedial work shall be performed at no additional cost to the University.
- B. Remedial work shall include re-performing any commissioning or other tests related to remedial work once remediation is complete at no additional cost to the University.

### 3.3 SYSTEM ACCEPTANCE

- A. Specified Division 13, 14, 21, 22, 23, 26, 27 and 28 systems shall be considered commissioned and substantially complete when the following have been submitted and approved by University Representative:
1. Final Commissioning Report.
  2. Post-construction trend review.
  3. Other completion documentation as defined in Divisions 22, 23, 26 and 28, including University sign-off that training has been completed.
  4. All remedial action associated with punchlists developed by the University's Representative.
- B. Remedial action required to address deficiencies identified by post-occupancy trend reviews shall be covered by the system warranty at no additional cost to the University.

END OF SECTION 01 91 00

SECTION 01 92 00  
OPERATING AND MAINTENANCE

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Compile Product Data and related information appropriate for University's maintenance and operation of products provided under this Contract.
- B. Prepare operating and maintenance data as specified herein and as specified in individual Specification Sections.
- C. Instruct University's personnel in the maintenance and operation of equipment and systems.

1.2 FORM OF SUBMITTAL

- A. Prepare data in the form of an instructional manual for use by University's personnel in both electronic and hard copy formats.
  - 1. Electronic Format
    - a. The Contractor may scan the documents using word searchable software or any other appropriate means so long as the resulting image is legible and word searchable when viewed from the provided CD-ROM using a computer.
  - 2. Hard Copy Format
    - a. Size: 8-1/2 by 11 inches.
    - b. Paper: 20 lb minimum, white, for typed pages.
    - c. Text: Manufacturers' printed or neatly typewritten data.
    - d. Drawings
      - (1) Provide reinforced punched binder tab that is bound with the text.
      - (2) Fold larger drawings to the size of the text pages.
    - e. Provide flyleaf for each separate product or each piece of operating equipment.
      - (1) Provide typed description of products and major component parts of equipment.
      - (2) Provide indexed tabs.
    - f. Cover: Identify each volume with typed or printed title "Operating and Maintenance Instructions". List the following:
      - (1) Project No.
      - (2) Title of Project.
      - (3) Identify general subject matter covered in the volume.
    - g. Binders
      - (1) Commercial quality three-ring binders with durable and cleanable plastic covers.
      - (2) When multiple binders are used, correlate the data into related groups.

3. Submit Operations and Maintenance manual on or before 75 percent progress payment submittal.

### 1.3 CONTENT OF MANUAL

#### A. Table of Contents: Include in each volume, neatly typewritten.

1. Identify Contractor, name of responsible principal, address, and phone number.
2. List each product included, indexed to the content of the volume.
3. List, with each product, the name, address, and telephone number of:
  - a. Subcontractor or installer.
  - b. Maintenance contractor, as appropriate.
  - c. Identify area of responsibility of each of the previously mentioned parties.
  - d. Nearest source of supply for parts and replacement.
4. Identify each product by product name, serial number, part number and any other identifying symbols necessary.
5. Identify the location of the installed product.

#### B. Product Data

1. Include only those sheets that are pertinent to the specific product.
2. Annotate each sheet to:
  - a. Clearly identify the specific product or part installed.
  - b. Clearly identify the data applicable to the installation.
  - c. Delete references to inapplicable information.

#### C. Drawings

1. Supplement Product Data with drawings as necessary to clearly illustrate:
  - a. Relations of component parts of equipment and systems.
  - b. Control and flow diagrams.
2. Coordinate drawings with information in Project record documents to assure correct illustration of completed installation.
3. Do not use Project record documents as maintenance drawings.

#### D. Written text: As required to supplement Product Data for the particular installation.

1. Organize in a consistent format under separate headings for different procedures.
2. Provide a logical sequence of instructions for each procedure.

#### E. Copy of each warranty, bond, and service contract issued

1. Provide information sheet for the University's personnel, giving
  - a. Proper procedures in the event of failure.
  - b. Circumstances that might affect the validity of warranties or bonds.

### 1.4 MANUAL FOR EQUIPMENT AND SYSTEMS

#### A. Submit 2 copies of the complete manual in its final form.

- B. Content, for each unit of mechanical equipment and each mechanical system, shall be as follows:
1. Description of unit or system, and component parts
    - a. Function, normal operating characteristics, and limiting conditions.
    - b. Performance curves, engineering data, and tests.
    - c. Complete nomenclature and commercial numbers of replaceable parts.
  2. Operating procedures
    - a. Start-up, break-in, and normal operating instructions.
    - b. Regulation, control, stopping, shutdown, and emergency instructions.
    - c. Summer and winter operating instructions.
    - d. Special operating instructions.
  3. Systems Demonstration
    - a. Prior to final inspection, demonstrate operation of each system to University's Representative and University personnel. All work, required for each system to be fully functional, shall be complete and the system shall be fully operational prior to the demonstration.
    - b. Instruct designated personnel in operation, adjustment, and maintenance of equipment and systems, using operation and maintenance data as basis of instruction.
  4. Maintenance procedures
    - a. Routine operations.
    - b. Guide to "trouble-shooting".
    - c. Disassembly, repair, and reassembly.
    - d. Aligning, adjusting, and checking
  5. Preventative Maintenance (PM) Schedule
    - a. A tabular listing of all systems and equipment within the facility which require preventative maintenance, to include:
      - (1) System or equipment name.
      - (2) System or equipment number.
      - (3) PM activity to be performed on that system or piece of equipment.
      - (4) Consumable materials required for performance of the PM activity, such as lubricants, including the specification and quantity needed.
      - (5) Frequency of performance of PM activity.
      - (6) Date of performance of first round of each PM activity relative to facility commissioning and acceptance by the University.
    - b. The requirements of this section cannot be met merely by the supply of Operating & Maintenance manuals from equipment vendors. The extraction of recommended preventative maintenance activities from vendor manuals for all equipment and incorporation onto a summary table as described above is required.
  6. Servicing and lubricating schedule, with list of lubricants required.
  7. Manufacturer's printed operating and maintenance instructions.
  8. Description of sequence of operation by control manufacturer.
  9. Original manufacturer's parts list, illustrations, current prices, recommended quantities to be maintained in storage, assembly drawings, and diagrams required for maintenance.
    - a. Predicted life of parts subject to wear.



- b. Items recommended to be stocked as spare parts.
  10. As-installed control diagrams by controls manufacturer.
  11. General Contractor and Subcontractors' coordination drawings and as-built color-coded piping diagrams.
  12. Charts of valve tag numbers, with the location and function of each valve.
  13. Other data as required in the various Specification Sections.
- C. Content, for each electrical and electronic system, as appropriate
  1. Description of system and component parts.
    - a. Function, normal operating characteristics, and limiting conditions.
    - b. Performance curves, engineering data, and tests.
    - c. Complete nomenclature and commercial numbers of replaceable parts.
  2. Circuit directories of panel boards.
    - a. Electrical service.
    - b. Controls.
    - c. Communications.
  3. As-built color-coded wiring diagrams.
  4. Operating procedures
    - a. Routine and normal operating instructions.
    - b. Sequences required.
    - c. Special operating instructions.
  5. Maintenance procedures
    - a. Routine operations.
    - b. Guide to "trouble-shooting".
    - c. Disassembly, repair, and reassembly.
    - d. Adjustment and checking.
  6. Manufacturer's printed operating and maintenance instructions.
  7. Original manufacturer's parts list, illustrations, current prices, recommended quantities to be maintained in storage, assembly drawings, and diagrams required for maintenance.
    - a. Predicted life of parts subject to wear.
    - b. Items recommended to be stocked as spare parts.
  8. Other data as required in the individual Specification Sections.
- D. Prepare and include additional data as may be required for instruction of the University's personnel.
- E. Additional requirements for operating and maintenance data as specified in the individual Specification Sections.
- F. Provide complete information for products specified in the individual Specification Sections.

## 1.5 SUBMITTAL REQUIREMENTS

- A. Submit 2 copies of the preliminary draft of proposed formats and outlines of content prior to preparation of data, 75 days prior to final inspection. University's Representative will review the draft and return 1 copy with comments.

- B. Submit 1 copy of the completed data in final form 45 days prior to final inspection. A copy will be returned with comments after final inspection. No final inspection will be made until the required data has been submitted and found to be satisfactory.
- C. Submit specified number of copies of approved data in final form 10 calendar days after final inspection but not later than 10 days prior to Owner Training.

#### 1.6 INSTRUCTIONS OF UNIVERSITY'S PERSONNEL

- A. Work requiring instruction of the University's personnel is specified in the individual Specification Sections.
- B. Schedule the instructional meeting or meetings 2 weeks after instructional manuals have been submitted, reviewed, and accepted by the University's Representative.
- C. Upon the University's taking Beneficial Occupancy or after Final Completion (whichever is earlier), fully qualified representatives of the manufacturers shall fully instruct the University's Representative and University personnel in the operation, adjustment, and maintenance of all equipment and systems.
- D. Basis of Instruction: Operating and maintenance manual. Review contents of manual with University personnel in full detail to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 92 00

Project No.: 908074



Specifications  
for  
**Kolligian Library 3W Renovation**  
**Volume 2 of 2**

University of California Merced  
Merced, California  
July 11, 2018

KOLLIGIAN LIBRARY 3W RENOVATION  
UNIVERSITY OF CALIFORNIA, MERCED  
MERCED, CALIFORNIA

Project No.: 908074

TITLE PAGE FOR

**INTERIOR RENOVATION:**  
**UNIVERSITY OF CALIFORNIA, MERCED**  
**3<sup>RD</sup> FLOOR OFFICES**  
**LEO AND DOTTIE KOLLIGIAN LIBRARY**

**UNIVERSITY OF CALIFORNIA, MERCED**  
**5200 LAKE ROAD**  
**MERCED, CA 95343**

PHA PROJECT NO. 2018-18

PREPARED BY:



PAUL HALAJIAN ARCHITECTS  
389 Clovis Ave., Suite 100  
Clovis, CA 93612

A handwritten signature in blue ink, appearing to read "Paul Halajian", written over a horizontal line.

**ARCHITECT**  
**Paul Halajian Architect**

END OF SECTION

June 26, 2018  
Revision: 1  
LF/SF: 00 01 01

SEALS PAGE  
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**SECTION 02 41 09  
SELECTIVE DEMOLITION**

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- B. Pre-demolition Photographs: Submit before Work begins.
- C. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.2 QUALITY ASSURANCE

- A. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition.

1.3 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
    - a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings, facilities and elements to remain.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.



2. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
3. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
4. Dispose of demolished items and materials promptly.
5. Use HEPA filtration exhaust systems for any construction activity that generates dust.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner or reinstallation.
4. Protect items from damage during transport and storage.
5. Items salvaged to Owner shall be held at the Project site for Owner's pick-up.
6. Items to be reinstalled shall be installed in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

1. Items removed, salvaged, and reinstalled for the Contractor's convenience shall be considered the same as items to be removed and salvaged for reinstallation.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Mechanical systems: Air handling unit are flow and exhaust air flow shutdowns shall be coordinated and scheduled with Owner.

1. Where ductwork or piping is to be removed, remove all hangers, rods, brackets, anchor bolts, seismic braces and cables and other associated specialties.
2. Do not release refrigerants.

END OF SECTION

**SECTION 07 21 00  
ACOUSTIC INSULATION**

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.2 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. CertainTeed Corporation.
  - 2. Guardian Fiberglass, Inc.
  - 3. Owens-Corning, Or equal
- B. Unfaced Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for conditions affecting performance of the Work.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

### 3.3 INSTALLATION

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled.
- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
- E. Glass-Fiber Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
  - 1. Install insulation of types indicated below:
    - a. Interior Walls:
      - 1) Walls Between Conditioned Spaces: Un-faced acoustical insulation at locations indicated on drawings.
  - 2. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  - 3. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
- F. Use mechanical anchorage to provide permanent placement and support of units.

### 3.4 PROTECTION

- A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, moisture, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION

**SECTION 07 92 00  
SEALANTS**

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Qualifications:
- a. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

1.2 PROJECT CONDITIONS

- A. Environmental requirements:
1. Apply materials within manufacturer's written recommended surface and ambient temperature ranges.
  2. Apply materials when working joints are most likely to be normal size.
  3. Do not install sealants under adverse weather conditions, or when temperatures are beyond manufacturer's written recommended limits.
    - a. Proceed with the installation only when forecasted weather conditions are favorable for proper sealant cure, and development of early bond strength. Allow a minimum of three days after rain.
    - b. Where joint width is affected by ambient temperature variations, install sealants only when temperatures are in the lower third of manufacturer's written recommended installation temperature range, so that sealant will not be subjected to excessive elongation and bond stress at low temperatures.

1.3 WARRANTY

- A. In accordance with Specification Section - WARRANTIES.
- B. Special Warranty:
1. Manufacturer shall warrant exterior joint sealant for 10 years after substantial completion of work.
  2. Sealant Contractor shall warrant sealants against defective materials and workmanship for 5 years after substantial completion of work.
    - a. Warranty shall further state that installed sealants are warranted against the following:
      - 1) Water leakage through sealed joints.
      - 2) Adhesive or cohesive failure of sealant.
      - 3) Staining of adjacent surfaces caused by migration of primer or sealant.
      - 4) Chalking or visible color change of the cured materials.
    - b. The installer shall make repairs during the warranty period at no cost to the Owner.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Products specified are from companies listed below, or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers listed as acceptable alternative manufacturers must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable manufacturers listed are not approved during the Submittal Process due to non-compliance with the written documents, then the Contractor shall submit product specified.

1. Specified product manufacturer, or approved equivalent:
  - a. One-Part Neutral Cure Silicone Sealant:
    - 1) PECORA "#890".
      - a) NOTE: For continual immersion in water conditions, provide PECORA "Dynatred".
      - b) If the water contains a chlorine content of 5ppm, then PECORA "Synthacalk GC2+" shall be used.
    - 2) Acceptable alternative manufacturers for 1) only above:
      - a) BONDAFLEX "Sil 290".
      - b) DOW CORNING "#790".
      - c) SONNEBORN "Sonolastic 150" or "Sonolastic 150 VLM".
  - b. One-Part Acid-Curing Silicone Sealant:
    - 1) PECORA "#860".
    - 2) Acceptable alternative manufacturers:
      - a) BONDAFLEX "Sil 100 GP".
      - b) DOW CORNING "#999-A".
      - c) SONNEBORN "Omniplus".
  - c. One-Part Mildew-Resistant Silicone Sealant:
    - 1) PECORA:
      - a) White Color Only "#345".
      - b) Available in multiple colors for selection "#898".
    - 2) Acceptable alternative manufacturers to 1), a), above:
      - a) BONDAFLEX "Sil 100 WF".
      - b) DOW CORNING "#786".
      - c) SONNEBORN "Omniplus".

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Site verification of conditions:
1. Prior to the execution of the work under this specification section, inspect the installed work executed under other specification sections of this Project Manual which, affect the

execution of work under this specification section.

2. Report unacceptable conditions to the Architect. Do not begin work until unacceptable conditions have been corrected.
3. Execution of work under this specification section shall constitute acceptance of existing conditions.

### 3.2 INSTALLATION

#### A. General:

1. Comply with joint sealant manufacturer's written installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

END OF SECTION

**SECTION 08 14 16  
FLUSH WOOD DOORS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to the following:
    - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
  - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Marshfield Door Systems, Inc
  - 2. Algoma Hardwoods Inc.
  - 3. Chappell Door Co., or equal.
- B. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

## 2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors" for Grades indicated.
  - 1. WDMA I.S.1-A Performance Grade: Heavy Duty unless otherwise indicated.
- B. Particle Board Core Doors: Particleboard, ANSI A208.1, Grade LD-2 made with binder containing no urea-formaldehyde resin.
  - 1. Blocking: Provide 5-inch top-rail blocking in particleboard-core doors indicated to have closers.
  - 2. Provide doors with structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

## 2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
  - 1. Grade: Custom with Grade A faces.
  - 2. Species: Maple
  - 3. Cut: Rotary cut.
  - 4. Match between Veneer Leaves: Book match.
  - 5. Assembly of Veneer Leaves on Door Faces: Running match.
  - 6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
  - 7. Room Match: Match door faces within each separate room or area of building. Corridor-door faces do not need to match where they are separated by 10 feet or more.
  - 8. Exposed Vertical Edges: Applied wood edges of same species as faces and covering edges of crossbands.
  - 9. Core: Particleboard unless otherwise indicated.
    - a. Structural composite lumber core for doors with exit devices
  - 10. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.
  - 11. WDMA I.S.1-A Performance Grade: Heavy Duty.

## 2.4 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.



B. Transparent Finish:

1. Grade: Custom.
2. Finish: WDMA TR-4 conversion varnish or TR-6 catalyzed polyurethane.
3. Staining: Clear stain to match (E).
4. Sheen: High gloss.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For hardware and hardware installation, see Division 08 Section "Door Hardware."
- B. Installation: Install doors to comply with manufacturer's written installation instructions and referenced quality standards indicated.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Re-hang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

**SECTION 08 41 13**  
**ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**

PART 1 - GENERAL

1.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction. Failure includes the following:
1. Deflection exceeding specified limits.
  2. Thermal stresses transferring to building structure.
  3. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
  4. Noise or vibration created by wind and by thermal and structural movements.
  5. Loosening or weakening of fasteners, attachments, and other components.
  6. Sealant failure.
- B. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Structural Loads:
1. Seismic Performance: Storefront window system assemblies shall withstand the effects of earthquake motions determined according to ASCE/SEI 7 and the California Building Code.
    - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
- D. Deflection of Framing Members, Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane shall not exceed L/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
- E. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factors (CRF) of not less than 57 (frame) and 70 (glass) when glazed with 1" (25 mm) insulated, 1/4" (6 mm) clear, 1/2" (12 mm) air, 1/4" (6 mm) clear glass and tested according to AAMA 1503.1.
- F. Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having an average U-factor of not more than 0.44 Btu/sq. ft. x h x deg F when glazed with 1" (25 mm) insulated, 1/4" (6 mm) clear, 1/2" (12 mm) air, 1/4" (6 mm) clear glass and tested according to AAMA 1503.1.

## 1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum-framed systems.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
- C. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
- D. Warranties: Manufacturer's standard warranty.
  - 1. Two years from the date of substantial completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

## 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
  - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- C. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines, ICC/ANSI A117.1, and the California Building Code.
- D. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.

## 1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Products: In other Part 2 Articles where named manufacturer's products are indicated as "Basis of Design," Drawings and Specifications are based on products manufactured by:
- 1) Kawneer North America; an Alcoa company.
  - b. Subject to compliance with requirements, provide products indicated or comparable products by one of the following:
    - 1) EFCO Corporation.
    - 2) Oldcastle Glass Engineered Prodcuts.
    - 3) United States Aluminum.

### 2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
1. Sheet and Plate: ASTM B 209.
  2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
  3. Extruded Structural Pipe and Tubes: ASTM B 429.
  4. Structural Profiles: ASTM B 308/B 308M.
  5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

### 2.3 STOREFRONT FRAMING SYSTEMS

- A. Framing Members, General: Manufacturer's standard extruded-aluminum framing members of type and size indicated and as required to support imposed loads.
1. Construction: Non-thermally broken.
  2. Glazing: As specified in Division 08 Section "Glazing".
  3. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.
  4. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
  5. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
  6. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:
  7. Structural Sealant: ASTM C 1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.

8. Color: Black
  9. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
  10. Color: Matching structural sealant.
- A. Basis of Design: Kawneer, VG 450 Framing System 2" Sightline.
1. Size: 2 by 4-1/2 inches, 4-1/2 by 4-1/2 inches.
  2. Wall Thickness: Not less than 0.080 inches.
  3. Glazing: Center Plane
  4. Finish: Kawneer Permaflour Coating; Bone White or sim.
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
  2. Reinforce members as required to receive fastener threads.
  3. Where fasteners must be exposed, use countersunk Phillips flat head screws finished to match framing system or fabricated from stainless steel.
- D. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.
1. Sealants shall be as specified in Division 07 Section "Joint Sealants."
- 2.4 GLAZING SYSTEMS
- A. Glazing: Glazing shall be as specified in Division 08 Section "Glazing."
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- 2.5 ACCESSORY MATERIALS
- A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 07 Section "Joint Sealants."

## 2.6 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 4. Provisions for field replacement of glazing from interior.
  - 5. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- C. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- D. Storefront Framing: Fabricate components for assembly using shear-block system.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
  - 1. Door stiles and rails shall have hairline joints at corners. Heavy concealed reinforcement brackets shall be secured with screws and shall be of deep penetration and fillet welded.
  - 2. All doors shall have an adjusting mechanism in the top rail to provide for minor clearance adjustments.

## 2.7 ALUMINUM FINISHES

- A. Kawneer Permafluor (70% PVDF), AAMA 2605, Fluoropolymer Coating, Color Bone White or sim.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

#### A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight unless otherwise indicated.

#### B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.

#### C. Set continuous sill members and flashing in full sealant bed as specified in Division 07 Section "Joint Sealants" to produce weathertight installation.

#### D. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

#### E. Install glazing as specified in Division 08 Section "Glazing."

#### F. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

### 3.3 ERECTION TOLERANCES

#### A. Install aluminum-framed systems to comply with the following maximum erection tolerances:

1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet; 1/4 inch over total length.
2. Alignment:
  - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
  - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.

#### B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch.

### 3.4 FIELD QUALITY CONTROL

#### A. Testing: Testing and inspecting of representative areas of installed work shall take place as follows.

1. Testing shall be performed by the Contractor in the presence of the Owner's Inspector. The Owner's Inspector shall be responsible for observing and reporting results of testing.
- B. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.
- C. Inspection Reports: Inspection reports shall be prepared by the Owner's Inspector.

### 3.5 ADJUSTING & CLEANING

- A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer and as specified in Division 8 Section "Door Hardware."
- B. Clean aluminum surfaces immediately after installing aluminum-framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION



**SECTION 08 70 00**  
**DOOR HARDWARE**

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
1. Provide all material, labor, equipment and services necessary to completely install all Building Hardware materials, accessories and other related items necessary to complete the Project as indicated by the Contract Documents.
- B. Related Sections: The following Project Manual Sections contain requirements that relate to this section:
1. ALL DIVISION 00 SPECIFICATION SECTIONS.
  2. ALL DIVISION 01 SPECIFICATION SECTIONS.
  3. 07 92 00 SEALANTS
  4. 08 11 00 METAL DOORS AND FRAMES
  5. 08 14 16 WOOD DOORS
  6. 09 91 00 PAINTING

1.2 REFERENCES

- A. Standards:
1. In accordance with the following standards:
    - a. ADAAG Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.
    - b. ASAHC American Society of Architectural Hardware Consultants.
    - c. BHMA Builders Hardware Manufacturers Association.
    - d. CBC California Building Code, 2016 Edition
    - e. DHI Door and Hardware Institute.
    - f. HMMA Hollow Metal Manufacturer's Association.
    - g. NFPA National Fire Protection Association.
    - h. UL Underwriter's Laboratories.
    - i. WHI Warnock Hersey Incorporated.

1.3 DEFINITIONS

- A. The following definitions apply to this Specification Section:
1. AFF Above Finished Floor.
  2. "LABEL" Shall mean "FIRE ASSEMBLY" as defined in CBC Section 713.2.
  3. LDW Less Door Width.
  4. NRP Non Removable Pin.
  5. POT Path of Travel (as defined by DSA/ACS and the CBC).

1.4 SUBMITTALS

- A. Submit in accordance with Specification Section - SUBMITTAL PROCEDURES:

1. Product Data.
  - a. Submit manufacturer's technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish (including any custom colors), and other information necessary to show compliance with requirements.
  - b. Provide Key Control System submittal for review prior to fabrication or ordering. Submit manufacturer's full color range (including any standard, premium and custom colors) for selection by the Architect.
  - c. Keying Schedule: Submit separate detailed schedule indicating clearly how the University's final instructions on keying of locks has been fulfilled.
2. Shop Drawings – (Hardware Schedule):
  - a. Submit shop drawings (Hardware Schedule) showing fabrication and installation of the work of this section including plans, elevations, sections, details of components, and attachments to other units of work. Include the following information:
    - 1) Type, style, function, size and finish of each Hardware Item.
    - 2) Name and manufacturer of each item.
    - 3) Fastenings and other pertinent information.
    - 4) Location of each hardware set cross-referenced to indications on the drawings both on the floor plans and in door and frame (opening) schedule as prepared by the Architect.
    - 5) Explanation of all abbreviations, symbols, and codes contained in schedule.
    - 6) Mounting locations for hardware.
    - 7) Door and frame sizes and materials.
    - 8) Keying information.
3. Closeout Submittals:
  - a. Maintenance Data in accordance with Specification Section - PROJECT CLOSEOUT.
  - b. Operation Data in accordance with Specification Section - PROJECT CLOSEOUT.
  - c. Record Documents in accordance with Specification Section - RECORD DOCUMENTS.
  - d. Warranty in accordance with Specification Section - WARRANTIES.

## 1.5 QUALITY ASSURANCE

- A. Meetings:
  1. Pre-installation Conference: Scheduled by the Contractor prior to the start of work.
    - a. Review hardware schedule, products and installation procedures.
    - b. Review University's keying standards.
    - c. Coordinate the work with all other related work.
    - d. Identify potential problems that may impede planned progress and proper installation of work regarding quality of installation and warranty requirements.
  2. Progress Meetings: Scheduled by the Contractor for the proper performance of the work.

- a. Review proper installation of work progress.
  - b. Identify any installation problems and acceptable corrective measures.
  - c. Identify any measures to maintain or regain project schedule if necessary.
3. Final Inspection: Scheduled by the Contractor upon proper completion of the work.
- a. Inspect and identify any problems that may impede issuance of warranties or guaranties.
  - b. Maintain installed work until the Notice of Completion has been executed.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

1. Products shall be stored above ground on level platforms, six (6) inches above ground, allowing air circulation under stacked units.
2. Provide secure lock-up for door hardware delivered to the Project, but not yet installed.

#### 1.7 WARRANTY

- A. In accordance with Specification Section –WARRANTIES.
- B. Special Warranties:
1. Closers Ten (10) Years.
    - a. Exception: Electronic closers shall be two (2) years.
  2. Exit Devices Three (3) Years.
  3. All other hardware Two (2) Years.

#### 1.8 MAINTENANCE

- A. Extra Materials:
1. Furnish a complete set of specialized tools and maintenance instructions as needed for University's continued adjustment, maintenance, and removal and replacement of door hardware.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Products specified are from companies listed below, or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers listed as acceptable alternative manufacturers must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable alternative manufacturers listed are not approved during the Submittal Process due to non-compliance with the contract documents, then the Contractor shall submit product specified.
1. Specified product manufacturer, or approved equivalent:
    - a. Continuous Gear Hinges ROTON
      - 1) Acceptable alternative manufacturers  
MARKAR

- |    |   |                   |
|----|---|-------------------|
| b. | Hinges, Butts and Pivots                          | HAGER COMPANIES.  |
|    | 1) Acceptable alternative manufacturers           | STANLEY HARDWARE. |
| c. | Locks (Locksets)                                  | SCHLAGE           |
| d. | Cylinders   | SCHLAGE           |
|    | 1) RX-L9092TEU 17A                                |                   |
| e. | Exit / Panic Devices                              | VON DUPRIN.       |
|    | 1) VonDuprin“98/99” Series, at interior openings. |                   |
|    | 2) Hager Companies “4500” Series                  |                   |
|    | 3) Sargent “80” Series                            |                   |
| f. | Overhead Closers                                  | LCN               |
|    | 1) LCN "4011", "4111", and “4640” Series          |                   |
| g. | Door Stops (Everywhere else)                      | IVES              |
|    | 1) Acceptable alternative manufacturer            | TRIMCO.           |
| h. | Thresholds  | PEMKO.            |
|    | 1) Acceptable alternative manufacturer            | HAGER COMPANIES.  |

- B. Products from other manufacturers not listed must submit in accordance with Specification Section - SUBSTITUTION PROCEDURES.

## 2.2 MATERIALS

### A. General:

1. Base Metals: Produce hardware units of basic metal and forming method indicating using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified within this specification section for applicable hardware units for finish designations indicated.
2. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
3. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
4. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
  - a. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely.
  - b. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

## 2.3 MANUFACTURED UNITS

### A. Hinges:

1. General:
    - a. Templates: Provide only template-produced units.
    - b. Provide Phillips flat-head screws complying with the following requirements:
      - 1) For metal doors and frames, install machine screws into drilled and tapped holes.
      - 2) Finish screw heads shall match surface of hinges or pivots.
  2. Butt:
    - a. Provide hinge pins as follows:
      - 1) Out-Swing Exterior Doors Non-removable pins.
      - 2) Out-Swing Corridor Doors with Locks Non-removable pins.
      - 3) Interior doors Non-rising pins.
      - 4) Tips: Provide flat button and matching plug, finished to match leaves.
    - b. Provide 3 hinges for doors with heights 61 to 90 inches, typ. u.n.o.
    - c. Hinges shall be 4-1/2 inches for doors up to 41" wide.
      - 1) Width: Sufficient to clear frame and trim when door swings 180 degrees.
- B. Lock Cylinders and Keying:
1. Lock Cylinders:
    - a. Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
  2. Keying:
    - a. Review the keying system with the University and provide the type required (Master, grandmaster or great-grandmaster), either new or integrated with the University's existing keying system. Contact University of California, Merced, Locksmith Services for keying instructions.
      - 1) Provide Schlage Interchangeable Core Cylinders for all keyed locksets and exit devices with 1467 Keyway. University to provide all keying.
      - 2) Equip locks and cylinders for construction core pin tumbler inserts. Provide only temporary inserts for the construction period, and remove when directed.
        - a) Provide final cores and keys to the University.
    - b. Key Blanks: Provide as directed by the University.
    - c. Provide keys manufactured from nickel silver only.
    - d. Supply keys and blanks as follows:
      - 1) Supply 3 uncut change keys for each different change key code.
      - 2) Supply additional uncut keys as directed by the University.
    - e. Comply with University's instructions for master keying, and except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
      - 1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE."
- C. Locks, Latches, and Bolts:

1. All doors shall be operable from within, without the use of a key by merely rotating the latching handle.
  2. All doors in areas used by students shall be self-releasing type, operable from within without the use of a key or special knowledge or effort.
  3. Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.
  4. Lock Protectors:
    - a. Lock astragals shall be provided with internally threaded fasteners for flat head machine screws. No hex head or carriage bolt fasteners will be permitted.
    - b. Must be through bolted to door.
  5. Provide  $\frac{3}{4}$  inch minimum throw of latch for mortise locks.
  6. Provide keyed dogging devices on doors equipped with exit devices.
    - a. Do not provide dogging on fire rated doors equipped with exit devices.
- D. Exit / Panic Devices:
1. Panic hardware shall comply with CCR Title 24, Part 12, Chapter 12-10-3.
    - a. The release mechanism shall be so designed that a horizontal force of 5 lbs. or less will actuate the release bar and latches applied in the direction of travel.
  2. No surface mounted vertical rods are allowed.
  3. Provide certificate by independent testing laboratory that device meets ANSI/BHMA A156.3 - 1994 standards.
  4. Device shall bear UL label for fire and or panic as may be required.
  5. Removable Mullions:
    - a. Removable with single turn of building key, and securely reinstalled without need for key.
    - b. All removable mullions shall be steel or aluminum clad steel whether the opening is fire-rated or not.
- E. Closers and Door Control Devices:
1. Door closer cylinders shall be of high strength cast iron construction with double heat treated pinion shaft to provide low wear operating capabilities of internal parts throughout the life of the installation.
    - a. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory.
  2. Except as otherwise specifically indicated, comply with manufacturer's written recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use.
    - a. Where parallel arms are indicated for closers, provide closer unit one size larger than recommended for use with standard arms.
    - b. Effort to operate shall conform to CBC Section 1133B.2.5 accessibility requirements.
- F. Door Stops:
1. Coordinate the installation of backing in walls with the door supplier, aligned with the top and bottom of doors.

2. All Floor Stops shall be installed within four (4) inches maximum from the face of wall, bollard or partition.

G. Thresholds:

1. Provide standard metal threshold unit of type, size, and profile as shown or scheduled.

H. Fasteners:

1. Screws for strikes, face plates and similar items shall be flat head, countersunk type, provide machine screws for metal and standard wood screws for wood.
2. Screws for butt hinges shall be flathead, countersunk, full-thread type.
3. Fastening of closer bases or closer shoes to doors shall be by means of sex bolts and spray painted to match closer finish.
4. Provide expansion anchors for attaching hardware items to concrete or masonry.
5. All exposed fasteners shall have a Phillips head.
6. Finish of exposed screws to match surface finish of hardware or other adjacent work.
7. All exit devices and lock protectors shall be fastened to the door by means of sex bolts, or through bolts.

## 2.4 FINISHES

A. Hardware finishes:

1. General:
  - a. All hardware shall be satin chromium (US26D – 626) unless otherwise noted.
  - b. Provide push plates, pull plates and kick or armor plates in satin stainless steel (US32D – 630) unless otherwise noted.
  - c. Door closers shall be powder-coated to match other hardware, unless otherwise noted.
  - d. Aluminum items shall be finished anodized aluminum (US28 – 628), except thresholds that can be furnished as standard mill finish.
2. Match items to the manufacturer's standard color and texture finish for the latch and lock sets.
3. Provide finishes that match those established by BHMA or, if none established, match existing.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Site verification of conditions:

1. Prior to the execution of the work under this specification section, inspect the installed work executed under other sections of this Project Manual that affect the execution of work under this specification section.
  - a. Verify that doors and frames are square and plumb and ready to receive work and dimensions are as instructed in writing by the manufacturer.
2. Report unacceptable conditions to the Architect. Do not begin work until unacceptable conditions have been corrected.

3. Execution of work under this specification section shall constitute acceptance of existing conditions.

### 3.2 PREPARATION

#### A. Coordination:

1. Coordinate work under this specification section with work specified under other sections to ensure proper and adequate interface of work.
  - a. Coordinate electrical power needs for those hardware items requiring electrical interface.
  - b. Coordinate electrical alarm needs (security, fire/smoke detection) for those hardware items requiring electrical alarm interface.
2. Provide all required hardware templates.

#### B. Surface preparation:

1. Prepare surface in accordance with manufacturer's written instructions and recommendations.
2. Coordinate the blocking required for all wall mounted hardware.
3. Clean substrates of substances (oil, grease, rolling compounds, incompatible primers, loose mill scale, etc.) which could impair bond of materials specified within this section.

### 3.3 INSTALLATION

#### A. General:

1. In accordance with manufacturer's written instructions and recommendations unless specifically noted otherwise.
  - a. Hardware distributor shall assist and advise installer in correcting field problems arising during installation of hardware.
  - b. Hardware distributor shall be on the Project within 48 hours upon being notified by the Contractor.
  - c. Hardware distributor shall assist installer in the proper adjustment of all door closers, and other operating devices.
2. In accordance with approved submittals.
3. In accordance with Regulatory Requirements.
4. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by the Architect.
  - a. Steel Doors and Frames: "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
  - b. CBC 1004.3.1.
  - c. Door opening devices shall be installed at 30" minimum to 44" AFF maximum height per CBC Section 1133B.2.5.2.
5. Install each hardware item in compliance with the manufacturer's written instructions and recommendations. Where indicated and where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in



- the Division 9 Sections.
- a. Do not install surface-mounted items until finishes have been completed on the substrate involved.
6. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
  7. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

### 3.4 ADJUSTING

- A. Adjusting:
  1. Adjust and check each operating item of hardware and each door to ensure proper operations or function of every unit.
    - a. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

### 3.5 SCHEDULES

- A. The hardware schedule should be used as a guide only. In case of omissions, provide hardware in accordance with that scheduled for a similar opening.

#### LEGEND:

MANUFACTURER	INITIALS
HAGER COMPANIES	HAG
MARKS USA	MRK
ROTON	RTN
SCHLAGE	SCH
TRIMCO	TRI
VON DUPRIN	VON

**GROUP 01 – (EACH OPENING TO HAVE): DOOR: 316.1, 316.2, 330.1, 300.2, 338.1  
 SINGLE DOOR, INTERIOR, NEW PASSAGE LEVER**

QUANT	DESCRIPTION	MANUFACTURER'S NUMBER	FINISH	MANUF
3 EA.	HINGE	5BB1 4.5 X 4.5	652	IVE
1 EA.	PASSAGE SET	L9010 17A	626	SCH
1 EA.	FLOOR STOP	FS439	682	IVE

**GROUP 02 – (EACH OPENING TO HAVE): DOOR: 311.1, 324.1, 326.1, 323.1, 344.1  
 SINGLE DOOR, INTERIOR, NEW CARD READER**

QUANT	DESCRIPTION	MANUFACTURER'S NUMBER	FINISH	MANUF
2 EA.	HW HINGE	5BB1HW 4.5 X 4.5	652	IVE
1 EA.	ELECTRIC HW HINGE	5BB1HW 4.5 X 4.5 TW8	652	IVE
1 EA.	EU MORTISE LOCK	RX-L9092TEU 17A	626	SCH
1 EA.	PRIMUS CORE	20-740	626	SCH

1 EA.	SURFACE CLOSER	4111 EDA	689	LCN
1 EA.	WALL STOP	WS407CCV	630	IVE
1 EA.	GASKETING	188S-CL	S-CL	ZER

CARD READER, DOOR CONTACT & WIRING FURNISHED BY ACCESS CONTROL SUPPLIER

**GROUP 03 – (EACH OPENING TO HAVE): DOOR: 301.1, 310.1  
 SINGLE DOOR, INTERIOR, NEW PASSAGE LEVER + CARD READER**

QUANT	DESCRIPTION	MANUFACTURER'S NUMBER	FINISH	MANUF
3 EA.	HW HINGE	5BB1HW 4.5 X 4.5	652	IVE
1 EA.	ELECTRIC HW HINGE	5BB1HW 4.5 X 4.5 TW8	652	IVE
1 EA.	EU MORTISE LOCK	RX-L9092TEU 17A	626	SCH
1 EA.	PRIMUS CORE	20-740	626	SCH
1 EA.	SURFACE CLOSER	4111 EDA	689	LCN
1 EA.	WALL STOP	WS407CCV	630	IVE
1 EA.	GASKETING	188S-CL	S-CL	ZER

CARD READER, DOOR CONTACT & WIRING FURNISHED BY ACCESS CONTROL SUPPLIER

**GROUP 04 – (EACH OPENING TO HAVE): DOOR: 353.3, 353.4  
 SINGLE DOOR, INTERIOR, NEW HOLD OPEN ONLY**

QUANT	DESCRIPTION	MANUFACTURER'S NUMBER	FINISH	MANUF
1 EA.	HOLD OPEN	SEM7480 AL	689	LCN

**GROUP 05 – (EACH OPENING TO HAVE): DOOR: 316.1, 316.2, 330.1, 330.2, 338.1, 338.2  
 SINGLE DOOR, INTERIOR, NEW PANIC HARDWARE**

QUANT	DESCRIPTION	MANUFACTURER'S NUMBER	FINISH	MANUF
2 EA.	HW HINGE	5BB1HW 4.5 X 4.5	652	IVE
1 EA.	ELECTRIC HW HINGE	5BB1HW 4.5 X 4.5 TW8	652	IVE
1 EA.	EXIT DEVICE	TBD		

OTHER ACCESSORIES TBD TO COMPLETE THIS ASSEMBLY

END OF SECTION

**SECTION 09 22 16  
METAL FRAMING**

**PART 1 - GENERAL**

**1.1 PROJECT CONDITIONS**

**A. Existing Conditions:**

1. Examine project and compare it with the drawings and specifications. Thoroughly investigate and verify conditions under which the work is to be performed. No allowance will be made for extra work resulting from negligence or failure to be acquainted with all available information concerning conditions necessary to estimate the difficulty or cost of the work.
2. Field Measurements: Take and be responsible for field measurements as required. Report any significant differences between field dimensions and the contract document conditions to Architect.
3. Carefully coordinate work under this Section with that of the structural framing sections and details so that the interface between structural framing and nonstructural framing shall provide the lines and degree of finish shown and specified.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Products specified are from companies listed below, or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers listed, as acceptable alternative manufacturers, must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable alternative manufacturers listed are not approved during the Submittal Process due to non-compliance with the contract documents, then the Contractor shall submit product specified.
- B. Studs, Tracks, Ceiling Joists, Channels and Steel Accessories specified product manufacturer:
- a. DIETRICH INDUSTRIES, INC.
  - b. Acceptable alternative manufacturers:
    - 1) ALLIED STUDCO.
    - 2) CEMCO.
    - 3) CLARK WESTERN.
  2. Metal screw specified product manufacturer:
    - a. GRABBER CONSTRUCTION PRODUCTS.

**2.2 COMPONENTS**

- A. Studs: Manufacturer's standard C-shaped steel studs, punched, with stiffened flanges, complying with ASTM C 645.
- B. Track: Manufacturer's standard U-shaped steel track, unpunched, with unstiffened flanges, complying with ASTM C 645.
1. Slotted Deflection Track: Manufacturer's single, 20 gage minimum, deep-leg, U-shaped

steel track; unpunched, with unstiffened flanges with vertical slotted holes, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads.

- a. Product, or approved equivalent, must be approved by the Architect.
- b. Slotted Deflection Track must be rated for both 1 and 2 hour "T" and "F" Fire-Rated Assemblies.

C. Channels: In sizes as shown in the Contract Documents:

1. 16 gage, 3/4 inch with 1/2 inch flange 300 lbs/1000 feet weight.
2. 16 gage, 1-1/2 inch with 17/32 inch flange 500 lbs/1000 feet weight.
3. 16 gage, 2 inch with 17/32 inch flange 590 lbs/1000 feet weight.

D. Flat Strap and Backing Plate: Galvanized Steel Sheet for blocking and bracing in length and width required.

1. Standard Backing shall be 16 gage minimum and continuous. Notch backing at studs.

E. Channel Bridging or Bracing:

1. U-Channel Assembly per ASTM C 645, Base Metal Thickness of 0.0538 inch and minimum 1/2 inch wide flanges.

F. Steel Accessories: Fabricate Backing, Bridging, Clip Angles, Strap and Shapes in configurations shown and in compliance with ASTM C 645.

1. Standard Backing shall be 16 gage minimum and continuous. Notch backing at studs.

## 2.3 ACCESSORIES

A. Fasteners:

1. Metal Screws: Provide corrosion-resistant-coated, self-drilling or self-tapping steel screws complying with ASTM C 1513.
  - a. Provide "Wafer Head" screws that provide low-profile so that subsequent substrates lay flat over fasteners.
2. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Site verification of conditions:

1. Prior to the execution of the work under this specification section, inspect the installed work executed under other sections of this Project Manual which affect the execution of work under this specification section.
2. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.
3. Carefully coordinate all requirements for pipes and other items designed to be housed within the partition, wall or ceiling systems.
4. Carefully coordinate all requirements for backing support of items to be mounted on finished walls.

5. Space metal framing as required for compliance with all pertinent regulations, to give proper support for the facing material, and as indicated on the Drawings.

### 3.2 PREPARATION

#### A. Protection:

1. Protect all adjacent surfaces from damage from work under this specification section.
2. Remove any fireproofing only as much of these materials as needed to complete installation of metal framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

### 3.3 INSTALLATION

#### A. General:

1. In accordance with drawings and manufacturer's written instructions and recommendations, and procedures described in ASTM C 754.
2. In accordance with approved Product Data.
3. In accordance with Regulatory Requirements.
4. Set plumb, level, and square.
5. Metal Framing may be shop or field fabricated for installation.

#### B. Layout:

1. Lines shall be straight and true.
2. Install Metal Framing according to ASTM C 754, unless more stringent requirements are indicated.

### 3.4 REPAIR / RESTORATION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed Metal Framing with galvanized repair paint and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure Metal Framing is without damage or deterioration at time of Completion.

### 3.5 FIELD QUALITY CONTROL

#### A. Site Tests:

1. As required by Regulatory Requirements.

#### B. Inspection:

1. As required by Regulatory Requirements.
2. Schedule inspections and notify the Architect, Project Inspector and any other regulatory agencies of the time at least 48 hours prior to the inspection.
3. Project Inspector shall verify that all stud cavity walls are free of moisture and dry prior to any other construction that encloses the wall cavity.

END OF SECTION

**SECTION 09 29 00  
GYPSUM BOARD**

**PART 1 - GENERAL**

**1.1 WARRANTY**

A. In accordance with standard limited warranty per Manufacturer.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

A. Products specified are from companies listed below, or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers listed as acceptable alternative manufacturers must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable alternative manufacturers listed are not approved during the Submittal Process due to non-compliance with the contract documents, then the Contractor shall submit product specified.

1. Specified gypsum board products manufacturer, or approved equivalent:

a. UNITED STATES GYPSUM COMPANY.

1) Wallboard "SHEETROCK AR SW EDGE".

b. Acceptable alternative manufacturers:

1) GEORGIA PACIFIC.

2) NATIONAL GYPSUM COMPANY.

**2.2 MATERIALS**

A. Wallboard: For interior walls and ceilings.

1. Standard: In accordance with ASTM C1396 "Standard Specification for Gypsum Board".

2. Size:

a. 5/8 inch thick by 4 foot wide maximum by practical length to minimize joints.

3. Long Edges: SW Tapered.

4. Core Type:

a. Non-Fire Rated: Regular.

5. Finish: Natural-finish face paper suitable for paint, wallpaper or other decorations.

B. Metal Accessories:

1. Corner Beads:

a. Outside Corner, 1-1/4 inch x 1-1/4 inch galvanized USG's "Dur-A-Bead" #103.

2. Edge Trim:

a. "U"-Shaped 1 inch galvanized USG's #200-A, size to fit gypsum board.

b. "L"-Shaped 1 inch galvanized USG's #200-B, size to fit gypsum board.

1) When "U"-Shaped molding above cannot be used.

3. Control Joint:

- a. 1-3/4" wide, 1/4" wide center channel with removable tape strip USG's #093.
4. Reveal Moldings (Aluminum Trim): Moldings listed below are manufactured by FRY REGLETS, or approved equivalent. Moldings shall be sized to fit gypsum board, typ. u.n.o.
- C. Fasteners: Screws At Gypsum Board: In accordance with the manufacturer's written recommendations and the following:
  - a. Screws: In accordance with CBC Chapter 7, ASTM C1002 "Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs", type S, G, and W, and ASTM C954 "Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness", Type S-12.
    - 1) Provide "Bugle Head" screws that help prevent damage to the gypsum core and face paper.
- D. Joint reinforcement tape and compounds:
  - a. In accordance with ASTM C474 "Standard Test Methods for Joint Treatment Materials for Gypsum Board Construction" and C475 "Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board", and Gypsum Board Manufacturer's written recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
  - b. Joint Tapes:
    - 1) Paper reinforcing tape, unless otherwise indicated.
  - c. Setting-Type Joint compounds for gypsum board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
    - 1) When used for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
    - 2) When used for pre-filling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
    - 3) When used for filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by the gypsum board manufacturer for this purpose.
    - 4) When used for topping compound, use sandable formulation.
- E. Other Materials: All other miscellaneous materials, not specifically described, but required for a complete and proper installation of gypsum board, shall be as selected by the Contractor subject to the approval of the Architect.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

##### A. Site verification of conditions:

1. Prior to the execution of the work under this specification section, inspect the installed work executed under other sections of this Project Manual which affect the execution of work under this specification section.
2. Report unacceptable conditions to the Architect. Do not begin work until unacceptable

conditions have been corrected.

3. Execution of work under this specification section shall constitute acceptance of existing conditions.

### 3.2 PREPARATION

#### A. Surface preparation:

1. Prepare surface in accordance with manufacturer's written instructions and recommendations.

### 3.3 INSTALLATION

#### A. General:

1. In accordance with manufacturer's written instructions and recommendations unless specifically noted otherwise.
2. In accordance with Regulatory Requirements.
3. Set plumb, level, and square.

#### B. Layout:

1. Lines shall be straight and true.
2. Control Joints:
  - a. Layout in accordance with GA-234-08 for both Non-Rated and Rated wall and ceiling conditions as follows:
    - 1) Provide Control Joints at an uninterrupted straight plane exceeding 30 ft. in length and total area between control joints, such that no area exceeds 900 sq.ft.

#### C. Gypsum Board:

1. Install in accordance with CBC Chapter 25, DITF and GA recommendations, gypsum board panel manufacturer's written recommendations and in accordance with fire-rated design numbers.
  - a. At Ceilings and Soffits:
    - 1) At gypsum board ceilings and soffit areas, install the ceiling prior to installing the walls.
    - 2) Float the interior ceiling angles
2. Install gypsum board panels horizontally on walls, floor to ceiling.

#### D. Cutting:

1. Cut gypsum board panels by scoring and breaking or by sawing, working from the face side.
  - a. When cutting by scoring, cut through the face paper and then snap the panel back away from the cut face; then break the backpaper by snapping the panel in the reverse direction or by cutting the back paper.
2. Smooth all cut ends and edges of panels as necessary to obtain a smooth joint.
3. For cut-outs in panels for pipes, fixtures, and other small openings, make holes and cut-outs by sawing or by such other method as will not fracture the core or tear the covering and with such accuracy that plates, escutcheons, or trim will cover the edges.



4. The use of "score-and-knockout" method will not be permitted.

E. Metal Accessories:

1. Corner Beads:

- a. Install at all corners with galvanized screws at nine (9) inch intervals in both flanges with fasteners placed opposite one another the full length of the corner bead. Clinch-on fastening is not allowed.

- 1) Fasteners shall be driven below the anticipated finished joint compound surface.

- b. Install in one piece except when length of corner exceeds stock lengths – then put splice up high away from people traffic.

2. Edge Trim: Install at all exposed joints where gypsum board panels abut another material with galvanized screws at nine (9) inch intervals the full length of the edge trim. Clinch-on fastening is not allowed.

- a. Fasteners shall be driven below the anticipated finished joint compound surface.

- b. Provide joint sealer in accordance with Specification Section – SEALANTS.

- 1) Provide fire sealant in accordance with Specification Section – FIRSTOPPING or Specification Section – SEALANTS, when the wall or ceiling is part of a fire-rated situation.

3. Control Joints:

- a. Install at 30'-0" o.c. maximum at all interior walls or partitions with uninterrupted planes that exceed 30' in length.

- 1) Opening frames that are full height of wall or partition may be considered a control joint.

- b. Install at 50'-0" o.c. maximum at all interior ceilings and shall not exceed 2,500 sq.ft. in total area with perimeter relief.

- c. Install at 30'-0" o.c. maximum at all interior ceilings and shall not exceed 900 sq.ft. in total area without perimeter relief.

F. Fastening:

1. Properly space all fasteners in careful accordance with the manufacturer's written recommendations and code requirements, with heads driven slightly below the surface for proper cementing, but without breaking the paper face.
2. Loosely butt all joints to be taped; firmly butt all joints to be left untreated.
3. Stagger all end joints and the joints between panels to achieve a maximum of bridging and a minimum of continued joints.

3.4 FINISHES

A. All textured finish coat finishes shall be level 4 per the Gypsum Association, with "Orange Peel" light texture finish, typ. u.n.o. See Finish Schedule for more information.

1. Where no specific substrate finish is called for on the drawings, select the appropriate level of substrate finish from the descriptions below for the final finish material.

END OF SECTION

**SECTION 09 50 00  
ACOUSTICAL CEILINGS**

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Qualifications:
- B. Obtain each product type through one source from a single manufacturer.

1.2 PROJECT CONDITIONS

- A. Existing Conditions:
  - 1. Examine site and compare it with the drawings and specifications. Thoroughly investigate and verify conditions under which the work is to be performed. No allowance will be made for extra work resulting from negligence or failure to be acquainted with all available information concerning conditions necessary to estimate the difficulty or cost of the work.

1.3 WARRANTY

- A. In accordance with Manufacturer's standard.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products specified are from companies listed below, or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers listed as acceptable alternative manufacturers must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable alternative manufacturers listed are not approved during the Submittal Process due to non-compliance with the contract documents, then the Contractor shall submit product specified.

- 1. Specified Panel product manufacturer, or approved equivalent:
  - a. ARMSTRONG WORLD INDUSTRIES.
  - b. Acceptable alternative manufacturers:
    - 1) CELOTEX.
    - 2) UNITED STATES GYPSUM COMPANY, USG INTERIORS.
- 2. Specified Suspension System product manufacturer, or approved equivalent:
  - a. ARMSTRONG WORLD INDUSTRIES.
  - b. Acceptable alternative manufacturers:

1) CHICAGO METALLIC CORPORATION.

2.2 MATERIALS

A. Ceiling Panel:

1. See the Ceiling Type Schedules at the end of this section for specified panel types.

B. Suspension Systems:

1. Grid - Type A (Refer to Ceiling Type Schedule at the end of this Section):
  - a. Grid System and required accessories shall be manufactured from commercial quality galvanized steel.
  - b. All Tee Grid System Numbers are from ARMSTRONG WORLD INDUSTRIES.
    - 1) Exposed Non-Rated 9/16" Tee Grid System, "Suprafine"
    - 2) Color: White.
  - c. Perimeter Molding: Shadow molding with pre-finished exposed flanges.
  - d. Seismic Clips:
    - 1) Seismic Perimeter Clips.
  - e. Edge Moldings and Trim
    - 1). Manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated.
    - 2). Provide moldings with exposed flange of the same width as exposed runner.
    - 3). Provide Shadow molding with pre-finished exposed flanges at wall to ceiling intersection.

C. Other Materials: All other miscellaneous materials, not specifically described, but required for a complete and proper installation of acoustical ceilings, shall be as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. In accordance with approved Submittals.
2. In accordance with Regulatory Requirements.
3. Installation shall comply with ASTM C636 ""Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels".
4. Installation shall also comply with CBC Section 1615A.1.16, 2506.2.1.

B. Layout:

1. Lines shall be straight and true.
2. Set plumb, level, and square.

- C. Suspended Acoustical Ceiling Panels:
1. Install acoustical ceiling panels with undamaged edges and fit accurately into suspension system runners and wall angles. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
    - a. Install panels with pattern running in one direction.
  2. Paint cut edges of panels remaining exposed after installation.
    - a. Match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical ceiling manufacturer.
  3. Penetrations through the ceiling for sprinkler heads and other similar devices that are not integrally tied to the ceiling system in the lateral direction shall have a two (2) inch oversized ring, sleeve, or adaptor through the ceiling tile to allow free movement of one (1) inch in all horizontal directions. Alternatively, swing joints may be provided per ASTM E 580, Section 5.2.8.5.

### 3.2 CEILING TYPE SCHEDULES

A. Panel Schedule: Match Existing Ceiling Tile

1. TYPE ACT-I
  - a. Manufacturer: ARMSTRONG WORLD INDUSTRIES
  - b. Design: "Ultima, Tegular Panel, Fine Texture"
  - c. Material: Mineral fiber panel with clear sealant membrane.
  - d. Size: 24" x 24" x 3/4" panel – Beveled Tegular lay-in edge.
  - e. Mounting: Grid Type A.
  - f. NRC Rating: Not less than 0.75.
  - g. CAC Range: 35.
  - h. Light Reflectance per ASTM E1477 "Test method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers":
    - 1) 0.90.
  - i. ASTM Classification per ASTM E1264 "Classification for Acoustical Ceiling Products":
    - 1) Type IV, Form 2, Pattern E,  
Class A per ASTM E84, "Test method for Surface burning Characteristics of Building Materials"
    - 2) Flame Spread Index 25 or under.
    - 3) Smoke Density Developed Index 50 or less.
  - j. Color: "White".

END OF SECTION

**SECTION 09 65 10  
RESILIENT BASE AND ACCESSORIES**

**PART 1 - GENERAL**

**1.1 PROJECT CONDITIONS**

- A. Environmental requirements:
  - 1. Temperature: Maintain temperature in space to receive products at sixty-eight (68) degrees Fahrenheit for two (2) days prior, during, and two (2) days following installation.
    - a. After this period, maintain a temperature of not less than fifty-five (55) degrees Fahrenheit.
    - b. After installation, at no such time shall the temperature exceed eighty-five (85) degrees Fahrenheit.
- B. Existing Conditions:
  - 1. Examine site and compare it with the drawings and specifications. Thoroughly investigate and verify conditions under which the work is to be performed. No allowance will be made for extra work resulting from negligence or failure to be acquainted with all available information concerning conditions necessary to estimate the difficulty or cost of the work.
  - 2. Field Measurements:
    - a. Take and be responsible for field measurements as required.
    - b. Report any significant differences between field dimensions and drawings to the Architect.

**1.2 WARRANTY**

- A. Manufacturer's Warranty:
  - 1. In accordance with manufacturer's written standard warranty:
    - a. Rubber Base Two (2) Years.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Products specified are from companies listed below, or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers that are listed as acceptable alternative manufacturers must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable alternative manufacturers listed are not approved during the Submittal Process due to non-compliance with the contract documents, then the Contractor shall submit product specified.
  - 1. Rubber Base manufacturer:
    - a. BURKE FLOORING.
    - b. Acceptable alternative manufacturers:
      - 1) MANNINGTON COMMERCIAL.
      - 2) ROPPE CORPORATION.

## 2.2 MATERIALS

### A. General:

1. Resilient base and accessories shall be of first quality and the product of one manufacturer.
2. All resilient base and accessories shall be impervious to water damage, and water and mildew resistant.
3. Adhesive shall be provided as recommended in writing by resilient base manufacturer.
4. Base shall be Straight.
5. Base height shall be 6", or match (E) adjacent height.
6. Thickness shall be 0.125".
7. Provide pre-formed inside and outside base corners from the same dye lot as the rubber base.
8. Color shall be Black (701) typical, u.n.o.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

#### A. Site verification of conditions:

1. Prior to the execution of the work under this specification section, inspect the installed work executed under other sections of this Project Manual that affect the execution of work under this specification section.
2. Insure that all flooring has been installed, fitted close to the wall to provide even support to the resilient base, and to insure a tight, smooth fit along the floor.
3. Report unacceptable conditions to the Architect. Do not begin work until unacceptable conditions have been corrected.
4. Execution of work under this specification section shall constitute acceptance of existing conditions.

### 3.2 PREPARATION

#### A. Coordination:

1. Coordinate work under this specification section with work specified under other sections to ensure proper and adequate interface of work.

#### B. Protection:

1. Protect all adjacent surfaces from drips, spray, air pollution of surrounding environment, and other damage from work.

#### C. Surface preparation:

1. Prepare surface in accordance with manufacturer's written instructions and recommendations.
2. Fill all cracks, joints, etc. with a Crack and Joint Filler according to manufacturer's written instructions.
3. Install self-leveling underlayment compound at depressed or uneven floor conditions.
4. Proceed only after unsatisfactory conditions have been corrected.
5. Perform manufacturer recommended bond test to verify adhesion of resilient base and accessory to substrate.
6. Apply any recommended primers over the leveling compounds or treated concrete slabs

prior to the installation of any resilient base or accessory products if recommended by the manufacturer.

### 3.3 INSTALLATION

#### A. General:

1. In accordance with manufacturer's written instructions and recommendations unless specifically noted otherwise.
2. In accordance with approved submittals.
3. In accordance with Regulatory Requirements.
4. Set plumb, level, and square.

#### B. Layout:

1. Lines shall be straight and true.

#### C. Resilient Base installation:

1. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
2. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
3. Tightly adhere resilient base to substrate throughout length of piece, with base in continuous contact with horizontal and vertical substrates.
4. Do not stretch resilient base during installation.
5. Pre-molded Corners: Install pre-molded corners before installing straight pieces.
6. After the installation, remove all excess adhesive before it dries.
7. Allow adhesive to set firm for approximately 24 hours before washing or applying any pressure.

END OF SECTION

**SECTION 09 68 16  
CARPETING**

**PART 1 - GENERAL**

**1.1 QUALITY ASSURANCE**

- A. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to carpet installation including, but not limited to, the following:
  - 1. Review delivery, storage, and handling procedures.
  - 2. Review ambient conditions and ventilation procedures.

**1.2 PROJECT CONDITIONS**

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Environmental Limitations: Do not install carpet until ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet before installing these items.
- D. Where existing carpet tiles are missing, damaged, or not matching adjacent field conditions, replace with new tiles. Provide unit price for this item per Division 01 Specifications, provided by University.

**1.3 WARRANTY**

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
  - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
  - 2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, loss of tuft bind strength, dimensional stability, excess static discharge, and delamination.



3. Warranty Period: 10 years from date of Substantial Completion.

#### 1.4 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).

### PART 2 - PRODUCTS

#### 2.1 CARPET TILE

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
  1. Basis of Design: Bentley Arcade Legend "8ALT40220T"
    - a. Color: Nitro Racer "800602"
- B. Fiber Type: Antron Lumena Type 6,6 Nylon
- C. Dye Method: Solution Dyed
- D. Pile Characteristic: Tufted textured loop
- E. Density: 6,013 oz./cu. yd.
- F. Total Thickness: 0.325"
- G. Total Weight: 92.0 oz./sq. yd.
- H. Size: 24" X 24"
- I. Stitches: 10.1 per inch.
- J. Gage: 1/12
- K. Primary Backing: NexStep Cushion Tile
- L. Applied Soil-Resistance Treatment: XTERA

## 2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet manufacturer.
- B. Adhesives: Use glue-down method per Manufacturer's recommendations.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Examine carpet for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet manufacturer.
  - 2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with CRI 104, Section 7.3, "Site Conditions; Floor Preparation," and with carpet manufacturer's written installation instructions for preparing substrates.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet.

### 3.3 INSTALLATION

- A. Comply with CRI 104 and carpet manufacturer's written installation instructions for installation over existing concrete slabs.
- B. Comply with carpet manufacturer's written recommendations and Shop Drawings for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under the door in closed position.
  - 1. Level adjoining border edges.
- C. Do not bridge building expansion joints with carpet.
- D. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.
- E. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, non-staining marking device.
- G. Install pattern parallel to walls and borders to comply with CRI 104, Section 15, "Patterned Carpet Installations" and with carpet manufacturer's written recommendations.
- H. Lay carpet tiles in ashlar pattern, typical u.n.o.

### 3.4 CLEANING AND PROTECTING

- A. Perform the following operations immediately after installing carpet:
  - 1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet manufacturer.
  - 2. Remove yarns that protrude from carpet surface.
  - 3. Vacuum carpet using commercial machine with face-beater element.
- B. Protect installed carpet to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet manufacturer and carpet adhesive manufacturer.

END OF SECTION

**SECTION 09 91 23  
INTERIOR PAINTING**

**PART 1 - GENERAL**

**1.1 SUBMITTALS**

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
  - 1. Indicate VOC content.
- B. Samples for Verification: Provide brush out samples for approval prior to ordering.

**1.2 FIELD CONDITIONS**

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products listed from Sherwin Williams for the paint category indicated, or comparable products by one of the following:
  - a. Dunn-Edwards Paints
  - b. Frazee Paints
  - c. PPG Paints, or equal.
- B. Products: Subject to compliance with requirements, provide product or a comparable product from other manufacturer listed in the Interior Painting Schedule for the paint category indicated.

**2.2 PAINT, GENERAL**

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. Colors: As indicated on Drawings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  1. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Apply paints according to manufacturer's written instructions.
- D. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.4 CLEANING AND PROTECTION

- A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.5 INTERIOR PAINTING SCHEDULE

- A. P-1 – Sherwin Williams 7006 Extra White, Finish: Eggshell, or color matched equivalent
- B. P-2 – Sherwin Williams 7006 Extra White, Finish: Semi-gloss, or color matched equivalent
- C. P-3 – Sherwin Williams 9122 Dried Edamame, Finish: Eggshell, or color matched equivalent
- D. P-4 – Sherwin Williams 6118 Leather Bound, Finish: Eggshell, or color matched equivalent
- E. P-5 – Sherwin Williams 7660 Earl Grey, Finish: Eggshell, or color matched equivalent

END OF SECTION

**SECTION 10 44 00**  
**FIRE PROTECTION SPECIALTIES**

**PART 1 - GENERAL**

**A. Regulatory Requirements:**

1. In accordance with Specification Section - REGULATORY REQUIREMENTS, and the following:
  - a. **CARB** Materials and equipment used for this Project shall comply with the current applicable regulations of the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA), in the area where the project is located.
  - b. **NFPA** National Fire Protection Association (NFPA 10)

**1.2 WARRANTY**

- A. Special Warranty:** Manufacturer's standard form in which manufacturer agrees to repair or replace components of portable fire extinguishers that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Failure of hydrostatic test according to NFPA 10.
    - b. Faulty operation of valves or release levers.
  2. **Warranty Period** Six (6) years from date of Completion.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Products specified are from companies listed below or approved equivalent. These products listed herein establish the size, pattern, color range and function selected by the Architect for this Project. Manufacturers listed as acceptable alternative manufacturers must still comply with the requirements of the products listed in order to be approved as an equivalent during the Submittal Process. If the acceptable alternative manufacturers listed are not approved during the Submittal Process due to non-compliance with the contract documents, then the Contractor shall submit product specified.**
1. **Specified product manufacturer, or approved equivalent:**
    - a. **LARSEN'S MANUFACTURING CO.**
      - 1) Special hardware when required "Larsen-Loc".
      - 2) **FEC-1:**
        - a) Non-rated Model #AL 2409-R3.
        - b) Fire Extinguisher Model #MP5-A.
    - Acceptable alternative manufacturer:
    - 3) **JL INDUSTRIES**

## 2.2 MANUFACTURED UNITS

### A. Cabinet and Extinguisher Types:

1. Semi-Recessed "Architectural Series" Type FEC-1.
  - a. Where wall depth is insufficient to accept complete box depth.
  - b. Non-rated: Model No. AL 2409-R3, for rough opening of 25"H x 10-1/2"W x 3"D. Box is to be fabricated from manufacturer's standard heavy gage steel, white baked enamel box. Provide at non-rated walls.
  - c. Provide 2-1/2 inch Rolled Edge Trim all around, fabricated from extruded aluminum with a clear satin anodized finish, with all corners mitered.
  - d. Typical Door (1/2" thick) to be "Vertical Duo" with tempered glass. Door to be fabricated from extruded aluminum with a clear satin anodized finish with "Black" Vertical Style Die Cut Lettering indicating "FIRE EXTINGUISHER" placed on the hinge side of the cabinet door.
  - e. Typical Door Hardware shall include a satin finish pull handle with a self-adjusting roller latch and a continuous piano hinge.
    - 1) Vandal Resistant Hardware: Provide "Larsen-Loc" and factory applied Type A Style lettering near the handle that reads "IN CASE OF FIRE ONLY - PULL FIRMLY ON HANDLE". Provide at the locations indicated on
  - f. Provide Multi-Purpose Fire Extinguisher with a UL Rating of 2A-10B:C.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

#### A. Site verification of conditions:

1. Prior to the execution of the work under this specification section, inspect the installed work executed under other sections of this Project Manual that affect the execution of work under this specification section.
  - a. Examine walls and partitions for suitable framing depth and blocking where recessed and semi-recessed cabinets will be installed.
  - b. Examine fire extinguishers for proper charging and tagging.
    - 1) Remove and replace damaged, defective, or undercharged units.
2. Report unacceptable conditions to the Architect. Do not begin work until unacceptable conditions have been corrected.
3. Execution of work under this specification section shall constitute acceptance of existing conditions.

### 3.2 PREPARATION

#### A. Surface preparation:

1. Prepare surface in accordance with manufacturer's written instructions and recommendations.

### 3.3 INSTALLATION

#### A. General:

1. In accordance with manufacturer's written instructions and recommendations unless



- specifically noted otherwise.
- 2. In accordance with Regulatory Requirements.
  - a. Comply with all applicable ADA and CBC requirements in regards to accessible mounting heights.
- 3. Set plumb, level, and square.
- 4. Identification:
  - a. Apply decals, vinyl lettering, or other identification devices at locations indicated.
- B. Layout:
  - 1. Lines shall be straight and true.

END OF SECTION

**SECTION 26 00 00**  
**GENERAL ELECTRICAL REQUIREMENTS**

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes general requirements specifically applicable to Divisions 26 including requirements from Division 1.

1.2 RELATED SECTIONS

- A All included sections under Division 1
- B All included sections under Division 26
- C Plans
- D Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Standards
  - 1 AEIC – Association of Edison Illuminating Companies
  - 2 ANSI – American National Standards Institute
  - 3 ASTM – American Society of Testing and Materials
  - 4 CBM – Certified Ballast Manufacturers Association
  - 5 EIA – Electronic Industry Association
  - 6 ICEA – Insulated Cable Engineers Association
  - 7 IEEE – Institute of Electrical and Electronics Engineers
  - 8 NEMA – The Association of Electrical and Medical Imaging Equipment Manufacturers
  - 9 FM - Factory Mutual
  - 10 UL – Underwriter's Laboratory's, Inc., Standards for Safety
- B Local codes and authorities having jurisdiction
  - 1 City codes
  - 2 County codes
  - 3 Local fire department
- C State codes and authorities having jurisdiction
  - 1 CBC – California Building Code
  - 2 CEC – California Electrical Code
  - 3 State of California Codes
- D National codes and authorities having jurisdiction
  - 1 NESC – National Electrical Safety Code
  - 2 OSHA – Occupational Safety and Health Act
- E Utilities
  - 1 Local cable company
  - 2 Local electrical company
  - 3 Local telephone company
- F Code compliance

- 1 All work and materials shall comply with the latest rules, codes and regulations, including, but not limited to the following:
  - a Occupational Safety and Health Act Standards (OSHA).
  - b CCR, Title 24, Part 3: California Electrical Code (CEC)
  - c All other applicable Federal, State and Local laws and regulations.
- 2 Code compliance is mandatory. Nothing in these Drawings and Specifications permits work not conforming to National, State, and Local electrical and building codes. Where work is shown to exceed minimum code requirements, comply with Drawings and Specifications.
- 3 No work shall be concealed until after inspection and approval by proper authorities. If work is concealed without inspection and approval, the Contractor shall be responsible for opening the concealed areas, making any required corrections and/or modifications to his work, and restoring the area to its previous condition.

#### 1.4 DEFINITIONS (APPLICABLE TO DRAWINGS AND SPECIFICATIONS)

- A Provide: To supply, install and connect complete and ready for safe and regular operation of particular work referred to unless specifically otherwise noted.
- B Install: To erect, mount and connect complete with related accessories.
- C Supply: To purchase, procure, acquire and deliver complete with related accessories.
- D Work: Labor, materials, equipment, apparatus, controls, accessories and other items required for proper and complete installation.
- E Wiring: Raceway, fittings, wire, boxes, related items and connection.
- F Concealed: Embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures.
- G Exposed: Either visible or subject to mechanical or weather damage, indoors or outdoors, including areas such as mechanical and storage rooms. In general, any item that is directly accessible without removing panels, walls, ceiling or other parts of structure.
- H Indicated, Shown, or Noted: As indicated, shown or noted on Drawings or Specifications.
- I Above Grade: Not buried in ground and not embedded in concrete slab on ground.
- J Below Grade: Buried in ground or embedded in concrete slab on ground.
- K Underground: Buried in ground, including under building slabs.
- L Connect: Complete hookup of item with required services, including conduit, wire and other accessories.
- M Furnish: Supply and deliver complete.
- N Similar or Equal: Of base bid manufacturer, equal in materials, weight, size, design, and efficiency of specified product, equivalent to Base Bid Manufacturer's product.
- O Reviewed, Satisfactory, Accepted, or Directed: As reviewed, satisfactory, accepted or directed by or to engineer.
- P Motor Controllers: Manual or magnetic starters (with or without switches), individual pushbuttons, or hand-off-automatic (HOA) switches controlling the operation of motors.
- Q Control Devices: Automatic sensing and switching devices such as thermostats, pressure, float, electro-pneumatic switches and electrodes controlling operation of equipment.
- R Contractor: Electrical Sub Contractor unless stated otherwise.
- S Use (verb): Furnish and install as defined above.

### 1.5 LICENSES, FEES AND PERMITS

Pay for all City, County or State electrical licenses, fees and permits. Arrange for all required inspections by agencies or authorities having local jurisdiction. The owner shall pay for all inspection fees and permits.

### 1.6 CONDITIONS AT SITE

- A A visit to the site is required of all bidders prior to submission of bid. All will be held to have familiarized themselves with all discernible conditions and no extra payment will be allowed for work required because of these conditions, whether specifically mentioned or not.
- B Underground or overhead lines or other services that are damaged as a result of this work shall promptly be repaired at no expense to the Owner and to complete satisfaction of the Owner.

### 1.7 DRAWINGS AND SPECIFICATIONS

- A All Drawings and all Divisions of these Specifications shall be considered as a whole and work of this Division shown anywhere therein shall be furnished under this Division.
- B The Contract Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduit and wiring is not assured. Exact requirements shall be governed by architectural, structural and mechanical conditions of the job. Consult all other Drawings in preparation of the bid. Extra lengths of wiring or addition of pull or junction boxes, etc., necessitated by such conditions shall be included in the bid. Check all information and report any apparent discrepancies before submitting bid.
- C Right is reserved to make change up to ten (10) feet in location of any outlet, device, or equipment prior to roughing in without increasing contract cost.
- D Equipment and fixtures shall be connected to provide circuit continuity in accordance with applicable codes, whether or not each piece of conductor, conduit or protective device is shown between items of equipment or fixtures and the point of circuit origin.

### 1.8 SAFETY AND INDEMNITY

- A Safety: The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.
- B No act, service, Drawing review or construction review by Owner, the Architect, the Engineers or their Consultants, is intended to include review of the adequacy of the Contractor's safety measures, in on or near the construction site.

### 1.9 RECORD DRAWINGS

- A Submit record Drawings under provisions of Section 013000.
- B Submit prior to final acceptance inspection, one complete marked-up set of reproducible engineering design Drawings.

- 1 Fully illustrate revisions made by crafts in course of work.
  - 2 Include field changes, adjustments, variances, substitutions and deletions, including Change Orders.
  - 3 Indicate exact location of raceways, equipment, and devices.
  - 4 Indicate exact size and location of underground and under floor raceways, grounding conductors, and duct banks.
  - 5 The record Drawings shall show all the work actually constructed and originally shown on the Drawing based upon the field construction by the Contractor.
- C These Drawings shall be for record purposes for Owner's use and are not considered Shop Drawings.

#### 1.10 MANUFACTURER'S INSTRUCTIONS

- A Where the Specifications call for an installation to be made in accordance with manufacturer's recommendations, a copy of such recommendations shall at all times be kept in the job superintendent's office and shall be available to the Owner's representative.
- B Follow manufacturer's instructions where they cover points not specifically indicated on Drawings and Specifications. If they are in conflict with the Drawings and Specifications, obtain clarification from the Architect or Engineer before starting work.
- C One (1) set of equipment manufacturer's Drawings shall be submitted to the Engineer for their record.

#### 1.11 OPERATING AND MAINTENANCE MANUALS

- A Operating and maintenance manuals and close-out documents are used interchangeably
- B Submit operating and maintenance manuals of equipment in the following format. Owner shall decide which format they prefer.
- 1 Three (3) hardcopy sets
  - 2 PDF format
- C For specific requirements, see the sections in which the equipment is specified.

#### 1.12 QUALITY ASSURANCE

- A Provide a meaningful quality assurance program. To assist the Contractor in this program, the Specifications contained herein are set forth as the minimum acceptable requirements. This does not relieve the Contractor from executing other quality assurance measures to obtain a complete operating facility within the scope of this project.
- B The Contractor shall insure that workmanship, materials employed, required equipment and the manner and method of installation conforms to accepted construction and engineering practices, and that each piece of equipment is in satisfactory working condition to satisfactorily perform its functional operation.

#### 1.13 GUARANTEE

Guarantee the installation free from defects of workmanship and materials for a period of one (1) year after Date of Certificate of final payment and promptly remedy any defects developing during this period, without charge.

#### 1.14 BIDDING

- A The contractor shall bid on the plans, specifications, etc. that constitute the contract documents.
- B The contractor shall not attempt to modify the contract documents without the approval of the electrical engineer.
- C All “value engineering” proposals shall be submitted in to the electrical engineer writing.
- D If the contractor makes changes to the contract documents not approved by the electrical engineer, the contractor will still be responsible for installing all devices, conductors, conduits, etc. the contract documents call for.

#### 1.15 ABBREVIATIONS

AIC	Amps interrupting capability
ANSI	American National Standards Institute
ASTM	ASTM International, formerly American Society for Testing and Materials
ATC	Astronomical time clock
CAD	Computer aided design
CATV	Cable television
CBC	California Building Code
CCTV	Closed circuit television
CEC	California Electrical Code
CFC	California Fire Code
CFL	Compact fluorescent lamp
CFR	Code of Federal Regulations
CMC	California Mechanical Code
CPC	California Plumbing Code
CSFM	California State Fire Marshal
DPDT	Double pole, double throw
DPST	Double pole, single throw
DSA	Division of the State Architect
DVR	Digital video recorder
EIA	Electronic Industries Association
EMT	Electrometallic conduit
EOR	Engineer of record
EPA	Effective projected area
FACP	Fire alarm control panel
FMC	Flexible metallic conduit
GRS	Galvanized, rigid steel conduit
HID	High intensity discharge
HPS	High pressure sodium
HVR	Hybrid video recorder
ICC-ES	International Code Council Evaluation Service
IDF	Intermediate data frame
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society of North America

IGBT	Insulated Gate Bipolar Transistor
IMC	Intermediate metallic conduit
IOR	Inspector of record
LAN	Local area network
LCD	Liquid crystal display
LCP	Lighting control panel/lighting relay panel
LED	Light emitting diodes
LRP	Lighting control panel/lighting relay panel
MDF	Main data frame
MH	Metal halide
NEC	National Electrical Code
NEMA	Association of Electrical Equipment and Medical Imaging Manufacturers
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
OCPD	Overcurrent protection device
PDF	Portable document format
PG&E	Pacific Gas and Electric
PQM	Power quality monitor
PTZ	Pan, tilt, zoom
PVC	Polyvinyl chloride
SCCR	Short circuit current rating
SCE	Signal current expander
SPD	Surge protective device
SPDT	Single pole, double throw
SPST	Single pole, single throw
TFT	Thin film transistor
THD	Total harmonic distortion
TIA	Telecommunications Industries Association
TVSS	Transient voltage surge suppression/suppressor
UL	Underwriters' Laboratories
USB	Universal series bus
UPS	Uninterruptable power supply
VFD	Variable frequency drive
VFD	Vacuum fluorescent display
VOIP	Voice over Internet protocol
VPN	Virtual private network
WAN	Wide area network

## PART 2 – PRODUCTS

### 2.1 MATERIAL APPROVAL

- A All materials must be new and bear Underwriters' Laboratories label. Materials that are not covered by UL testing standards shall be tested and approved by an independent testing laboratory or a governmental agency.

- B Material not in accordance with these Specifications may be rejected either before or after installation.
- C Materials or equipment specified by:
  - 1 Name of manufacturer.
  - 2 Brand or trade name.
  - 3 Catalog reference.

## 2.2 SUBSTITUTIONS

- A Base the bid on use of materials specified.
- B Equipment other than specified will be considered for approval provided it meets previous items A through C and the following is submitted in writing by the Contractor to the Engineer to allow approval at least 14 days before the bid date:
  - 1 The request for permission to substitute shall be accompanied with a statement of the amount of money to be returned to the contract if the substitution is permitted.
  - 2 Return a completed request for substitution form.
- C The engineer is the sole judge of acceptability of preferred substitutions.
- D If a substitute is permitted, and any re design effort is thereby necessitated, the required re design shall be at the Contractor's expense.

## 2.3 SUBMITTALS

Submit to architect, or engineer if no architect is involved, seven (7) copies of complete Shop Drawings and materials lists, as noted below, for review within thirty (35) days after award of contract. All proposed deviations from Specifications must be clearly listed and submitted separately under a prominent heading entitled "Substitutions."

- A Fire Alarm Systems
- B Communication Systems
- C Pull Boxes and Cabinets
- D Conduit and Wire
- E Service and distribution
- F Transformers

## 2.4 OPERATING AND MAINTENANCE MANUALS

Submit Operating and Maintenance Manuals of equipment as specified under Division 1. Verify exact quantity with architect, or engineer if no architect is involved.

## 2.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A Equipment shall be shipped in its original packages, to prevent damaging or entrance of foreign matter. Handling and shipping shall be performed in accordance with manufacturer's recommendations. Provide protective covering during construction.
- B Replace at no expense to Owner, equipment or material damaged during the storage or handling, as directed by the engineer.



- C Equipment shall be tagged with a weatherproof tag identifying equipment by name and purchase order number. Packing and shipping lists shall be included.

### PART 3 – EXECUTION

#### 3.1 CLEARANCE

Minimum code required clearances for electrical equipment shall not be violated.

#### 3.2 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS

- A Only quality workmanship will be accepted. Haphazard or poor installation practice will be cause for rejection of work.
- B The Electrical Contractor shall provide a Superintendent in charge of this work at all times to direct the quality of the installation.

#### 3.3 COORDINATION

- A Coordinate work with other trades to avoid conflict and to provide correct rough in and connection for equipment furnished under other trades and requiring electrical connections. Inform Contractors of other trades of the required access to and clearances around electrical equipment to maintain serviceability and code compliance.
- B Verify equipment dimensions and requirements with provisions specified under this Section. Check actual job conditions before fabricating work. Report necessary changes in time to prevent needless work. Changes or additions subject to additional compensation and agreed price shall be at Contractor's risk and expense.
- C Provide temporary feeds and connections to areas and equipment as required to allow phased construction and operation.

#### 3.4 CUTTING AND PATCHING

All cutting and patching required for work of this Division is included herein. Coordination with General Contractor and other trades is imperative. Contractor shall bear the responsibility for and bear the added expense of adjusting for improper holes, supports, etc.

END OF SECTION

**SECTION 26 05 00**  
**BASIC ELECTRICAL MATERIALS AND METHODS**

PART 1 – GENERAL

1.1 SECTION INCLUDES

Materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction, for the following:

- A Conduit and raceways
- B Wire and cables
- C Outlet boxes
- D Junction boxes
- E Pull boxes
- F Grounding

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
  - 1 Section 013000: Administrative Requirements
  - 2 Section 013300: Submittal Procedures
  - 3 Section 014000: Quality Requirements
  - 4 Section 016000: Product Requirements
  - 5 Section 017000: Execution and Closeout Requirements
  - 6 All other included sections under Division 1
- B All included sections under Division 26
- C Plans
- D Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

Published specification standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.

- A American Society for Testing and Materials
  - 1 ASTM B3: Standard Specification for Soft or Annealed Copper Wire
  - 2 ASTM B33: Standard Specification for Tin-Coated or Annealed Copper Wire for Electrical Purposes
  - 3 ASTM B738: Standard Specification for Fine-Wire Bunch-Stranded and Rope-Lay Bunch-Stranded Copper Conductors for Use as Electrical Conductors
  - 4 ASTM B355: Standard Specification for Nickel-Coated, Soft or Annealed Copper Wire
  - 5 ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- B California Electrical Code (CEC)
- C Institute of Electrical and Electronic Engineers (IEEE)
  - 1 IEEE 81: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System Part 1: Normal Measurements

- 2 IEEE 82: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
  - 3 IEEE 95: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
  - 4 IEEE 141: Recommended Practice for Electric Power Distribution for Industrial Plants
  - 5 IEEE 142: IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems
  - 6 IEEE 241: Recommended Practice for Electric Power Systems in Commercial Buildings
  - 7 IEEE 242: Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (IEEE Buff Book)
  - 8 IEEE 399: Recommended Practice for Industrial and Commercial Power Systems Analysis (Brown Book)
  - 9 IEEE 442: Guide for Soil Thermal Resistivity Measurements
  - 10 IEEE 576: Recommended Practice for Installation, Termination, and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications
  - 11 IEEE 1185: Recommended Practice for Cable Installation in Generating Stations and Industrial Facilities
  - 12 IEEE 1584: Guide for Performing Arc Flash Hazard Calculations
  - 13 IEEE 1584a: Guide for Performing Arc-Flash Hazard Calculations--Amendment 1
  - 14 IEEE 1584b: Guide for Performing Arc-Flash Hazard Calculations--Amendment 2: Changes to Clause 4
- D Underwriters' Laboratories
- 1 UL 1: Flexible Metal Conduits
  - 2 UL 4: Armored Cable
  - 3 UL 5: Surface Metal Raceways and Fittings
  - 4 UL 5A: Nonmetallic Surface Raceways and Fittings
  - 5 UL 5B: Standard for Strut-Type Channel Raceways and Fittings
  - 6 UL 5C: Standard for Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
  - 7 UL 6: Electrical Rigid Metal Conduit – Steel
  - 8 UL 13: Power Limited Circuit Cables
  - 9 UL 83: Thermoplastic Insulated Wires and Cables
  - 10 UL 310: Electrical Quick-connect Terminals
  - 11 UL 360: Liquid Tight Flexible Steel Conduit
  - 12 UL 444: Communications Cables
  - 13 UL 467: Grounding and Bonding Equipment
  - 14 UL 486A: Wire Connectors
  - 15 UL 486B: Wire Connectors
  - 16 UL 486C: Splicing Wire Connectors
  - 17 UL 486D: Sealed Wire Connector Systems
  - 18 UL 486E: Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
  - 19 UL 493: Thermoplastic Insulated Underground Feeder and Branch Circuit Cables
  - 20 UL 510: Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape

- 21 UL 514A: Metallic Outlet Boxes
- 22 UL 514B: Conduit, Tubing, and Cable Fittings
- 23 UL 514D: Cover Plates for Flush-mounted Wiring Devices
- 24 UL 635: Insulating Bushings
- 25 UL 651: Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
- 26 UL 797: Electrical Metallic Tubing – Steel
- 27 UL 870: Wireways, Auxiliary Gutters, and Associated Fittings
- 28 UL 969: Marking and Labeling Systems
- 29 UL 1063: Machine Tool Wires and Cables
- 30 UL 1242: Standard for Electrical Intermediate Metal Conduit - Steel
- 31 UL 1332: Organic Coatings for Steel Enclosures for Outdoor Use Electrical Equipment
- 32 UL 1446: Systems of Insulating Materials – General
- 33 UL 1479: Fire Tests of Through Penetration Firestops
- 34 UL 1565: Position Devices (includes cable ties and clamps)
- 35 UL 1581: Reference Standard for Electrical Wires, Cables, and Flexible Cords
- 36 UL 1652: Flexible Metallic Tubing
- 37 UL 1685: Vertical-tray Fire Propagation and Smoke Release Test for Electrical and Optical Fiber Cables
- 38 UL 1773: Standard for Termination Boxes
- 39 UL 1977: Component Connectors for Use in Data, Signal, Control, and Power Applications
- 40 UL 2024: Standard for Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies
- 41 UL 2029: Gas/Vapor Blocked Cable Classified for Use in Class 1 Hazardous (Classified) Locations
- 42 UL 2062: Enclosures for Use in Hazardous (Classified) Locations
- 43 UL 2196: Test for Fire Resistive Cables
- 44 UL 2237: Multi-point Interconnection Power Cable Assemblies for Industrial Machinery
- 45 UL 2238: Standard for Cable Assemblies and Fittings for Industrial Control and Signal Distribution
- 46 UL 2239: Hardware for the Support of Conduit, Tubing, and Cable
- 47 UL 2250: Standard for Instrumentation Tray Cable
- 48 UL 2225: Cables and Cable Fittings for Use in Hazardous (Classified) Locations
- 49 UL 2239: Hardware for the Support of Conduit, Tubing, and Cable
- 50 UL 2256: Nonmetallic Sheathed Cable Interconnects
- 51 UL 2257: Identification Tests for Jacket and Insulation Materials Used in Plenum Cables
- 52 UL 2459: Insulated Multi-pole Splicing Wire Connectors
- 53 UL 2556: Wire and Cable Test Methods

#### 1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.

- C Equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.
- E Deliver, store and protect products under provisions of Section 016000.
- F Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- G Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- H Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

### 1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
  - 1 Table of contents
  - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
  - 3 Part numbers
  - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
  - 5 Maintenance instructions and intervals
  - 6 Calibration procedures and intervals
  - 7 A complete set of drawings for any special items
  - 8 Wiring diagrams
- C Electronic submittals shall be searchable
- D Seismic Restraint and Anchorage: Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment in accordance with CBC, Title 24, Part 2, Section 1615A.1 and ASCE 7-05 Section 13.6, and all provisions of this Section.
  - 1 Submit calculations prepared and signed by a Structural Engineer licensed in the State of California, showing compliance with the above for all electrical equipment weighing more than 50 pounds, excepting items corresponding exactly in configuration and weight to those specified and detailed. Where anchorage details are not shown on drawings, the field installation shall be subject to the approval of the Electrical Engineer.
  - 2 All equipment mounted on concrete shall be secured with steel stud expansion anchors requiring a drilled hole. Power driven anchors are not acceptable. Minimum spacing shall be 10 diameter center to center and 5 diameters center to edge of concrete. Maximum allowable stresses for tension and shear shall be 80% of the ICC Evaluation Services research or evaluation report values. Acceptable manufacturers are Hilti, Red Head, and Simpson Strong Tie.
  - 3 Conduit and suspended equipment shall be provided with supports and seismic restraints in accordance with Unistrut, Inc. Seismic Bracing Guide, or Super Strut Inc., Seismic Restraint System guide. Support requirements shall be based upon

similar equipment; i.e., water piping as equivalent to conduit with wire fill. A copy of the guide shall be on the job site during construction.

- E The submittal shall be substantially complete for all items and equipment furnished under this section.
- F Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- G Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

## 1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
  - 1 Table of contents
  - 2 Manufacturer (including contact information)
  - 3 Model number
  - 4 Voltage ratings
  - 5 Current ratings
  - 6 List of capabilities
  - 7 Environmental ratings
  - 8 NEMA enclosure type
  - 9 Maintenance instructions and intervals
  - 10 Calibration procedures and intervals
  - 11 Installation instructions
  - 12 Repair instructions (where applicable)
  - 13 As-built drawings
- C Provide manuals in one of the following formats
  - 1 Three hardcopies
  - 2 PDF

## PART 2 – PRODUCTS

### 2.1 CONDUIT AND OTHER RACEWAYS

- A Rigid Conduit, also referred to as Galvanized Rigid Steel Conduit (GRS)
  - 1 Material: High strength steel
  - 2 Coating
    - a All uses: hot-dipped galvanized
    - b Underground or corrosive areas
      - 1 40-mil, UV stabilized PVC coated
      - 2 Coating shall conform to NEMA RN-1
  - 3 Fittings shall be threaded.
  - 4 Conduit shall be UL-6 listed.
- B Intermediate Metal Conduit (IMC)
  - 1 Material: Steel
  - 2 Coating

- a All uses: hot-dipped galvanized
- b Underground or corrosive areas
  - 1 40-mil, UV stabilized PVC coated
  - 2 Coating shall conform to NEMA RN-1
- 3 Conduit shall be UL-1242 listed.
- C Electrical Metallic Tubing (EMT)
  - 1 Material: Steel
  - 2 Coating
    - a All uses: hot-dipped galvanized
    - b Underground or corrosive areas
      - 1 40-mil, UV stabilized PVC coated
      - 2 Coating shall conform to NEMA RN-1
  - 3 Fittings shall be threaded.
  - 4 Connectors and couplings
    - a Water tight, steel compression type exterior and in wet locations. Use ETP Fittings Inspectoridge or approved equal when possible.
    - b Steel set screw type in interior, dry locations.
- D Non-metallic conduit
  - 1 Conduit shall be schedule 40 PVC (minimum)
  - 2 Approved for use as non-metallic raceway with 90°C conductors
  - 3 Comply with NEMA TC-2 and NEMA TC-3
- E Flexible Metallic Conduit
  - 1 Material: High strength, hot-dipped galvanized steel
  - 2 Construction: Interlocked
  - 3 Conduits in damp, wet, or corrosive areas shall be liquid tight type with PVC jacket extruded over the steel conduit.
- F Fittings and accessories
  - 1 Fittings and accessories for all conduit types shall be approved for the purpose and equal in all respects to the conduit or raceway.
  - 2 Fittings and accessories for metallic conduits shall be made of ferrous metal and galvanized after fabrication.
- G Pull lines
  - 1 All conduits shall have a minimum of one pull line.
  - 2 Pull line shall be 1/8 inch diameter, yellow color.
  - 3 All pull lines shall be tagged at both ends so as to indicate the length of the conduit run, source, and the destination. (See section 3.3, A, 6).
  - 4 Pull lines shall be Tubbs Cordage "Polyline" or approved equal.
- H Wireways
  - 1 NEMA type
    - a NEMA-1 for dry locations
    - b NEMA-3R or NEMA-4 for damp and wet locations
    - c NEMA-4X for corrosive locations
  - 2 Metal type
    - a Non-corrosive locations: mild steel
    - b Corrosive locations: stainless steel
  - 3 Thicknesses
    - a 6"x6" cross-section and smaller: 16 gauge

- b 8"x8" cross-section and larger: 14 gauge
- 4 Finish: The entire enclosure shall be finished as follows:
  - a Degreasing
  - b Cleaning
  - c Phosphatizing
  - d Electrostatic deposition of polymer polyester powder coating followed by baking to produce a hard durable finish.
    - 1 The average thickness of the paint film shall be 2.0 mils.
    - 2 Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
  - e Finish shall conform to UL 50 and UL 50E.
  - f Color shall match surrounding area.
- 5 Covers
  - a Wireways shall have hinged covers.
  - b NEMA 3R, 4 and 4X wireways shall be a gasket on the inside of the cover to seal the wireway when cover is closed.
  - c Covers shall have latches to secure the cover in the closed position.
- 6 Wireways shall be UL listed.
- I Cable Trays
  - 1 Material: High strength steel
  - 2 Coating
    - a All uses: hot-dipped galvanized
    - b Underground or corrosive areas: 40-mil, UV stabilized PVC coated, coating shall conform to NEMA RN-1
  - 3 Construction
    - a Trays shall be ladder type unless otherwise noted.
    - b Maximum distance between cross-members shall be 12 inches.
  - 4 Trays shall meet NEMA VE-1 standards.
- J Raceways shall be UL listed.

## 2.2 WIRE AND CABLE

- A Conductors for power and lighting systems 600V or less:
  - 1 Conductors shall be 90°C rated.
  - 2 Conductors size #12 AWG and larger shall be stranded copper.
  - 3 Type:
    - a THWN for wet or underground locations
    - b THHN for dry locations.
    - c 90°C rated
  - 4 Minimum conductor size for voltage drop:
    - a Minimum size #12 AWG for runs 50 feet or less for 208/120V systems or 100 feet or less for 480/277V systems
    - b Increase conductor by one size by one method below:
      - 1 For each additional 50 feet for 208/120V systems or 100 feet for 480/277V systems.
      - 2 Calculate voltage drop and size as directed by CEC Voltage Drop Restrictions.



- c Underground circuits shall be #8 AWG minimum wire, unless otherwise noted.
  - d Once the contractor has determined conductors' route, calculate the minimum size to meet maximum voltage drop allowed per CEC using  $D_{min}=C*L*I/(V_D*N)$ .
    - 1  $D_{min}$  is the minimum diameter (circular mills)
    - 2  $C=24$  for copper,  $C=39$  for aluminum
    - 3  $L$  is conductor length (feet)
    - 4  $I$  is the current (amps)
    - 5  $V_D$  is the maximum allowable voltage drop (volts)
    - 6  $N$  is the quantity of parallel conductors per phase
  - 5 Minimum size conductors for OCPD shall be determined from CEC Table 310.16 with ampacity corrected for 115°F.
  - 6 Conductor size shall be the largest size to meet maximum voltage drop (2.2 A 4) and to meet CEC ampacity requirements (2.2 A 5).
- B For Signal and Communication Circuits:
- 1 Special Cables: As specified on Drawings.
  - 2 Conductors for general communications use: Stranded copper conductor, #16 AWG minimum, with THWN insulation for underground or wet locations and THHN insulation for dry locations.
  - 3 Ends of stranded conductors shall be tinned.

### 2.3 OUTLET BOXES, JUNCTION BOXES, AND PULL BOXES

- A Above ground locations
  - 1 Outlet Boxes
    - a Hot-dipped galvanized after fabrication
    - b Of required size, minimum 4 inches square, for flush mounted devices and lighting fixtures
    - c Cast type with gasketed covers for outdoor or wet locations.
    - d Device and fixture back boxes shall be 2-1/4" deep, minimum.
  - 2 Junction and Pull Boxes
    - a Use outlet boxes with appropriate covers as junction boxes wherever possible.
    - b Larger junction and pull boxes
      - 1 Sheet steel, hot dipped galvanized after fabrication, finished gray baked enamel
      - 2 Sized according to code
      - 3 Screw-on covers.
- B In-ground pull boxes, handholes, and manholes
  - 1 Precast concrete type with required extension collars.
  - 2 Covers
    - a Lids shall be steel or reinforced concrete, as shown on plans. Pull box lids in traffic areas or large grassy areas subject to mowing by riding mowers shall be traffic rated.
    - b Covers shall include hold down bolts.
    - c Top of cover shall be flush with top of box.

- d Covers shall be identified as ELECTRICAL, SIGNAL, or COMMUNICATIONS unless otherwise specified.
  - 3 Size boxes as indicated on Drawings. If size is not indicated on Drawings, use CEC as a minimum requirement.
  - 4 Boxes shall have 2" thick (minimum), reinforced concrete bottoms with 1" diameter drain hole over 12" of crushed rock.
  - 5 Boxes shall have approved cable supports.
  - 6 Concrete encased stubs for handholes extending five (5) feet beyond handhole.
  - 7 All pull boxes shall be no smaller than a Christy Concrete Products N09.
  - 8 All pull boxes shall be set flush to finished grade and shall have an 8-inch wide by 3-inch thick concrete mow strip poured around it.
  - 9 Manufacturer shall be Brooks Products, Oldcastle Enclosure Solutions (Christy), Jensen Precast, or approved equal.
  - 10 All sections between box, extension rings, etc. and penetrations shall be sealed with mortar.
- C Floor Boxes
- 1 Provide Walker or equal Modulink non-metallic floor box for concrete areas.
  - 2 Provide quantity of boxes required to accommodate each device.
  - 3 Provide Walker Wood Floor Boxes at wood floors provide quantity required to accommodate each device.
  - 4 Provide brass flip cover lids.
- D Outlet boxes, junction boxes, pull boxes, etc. recessed in a concrete wall shall be deep masonry boxes.

## 2.4 CONDUIT AND EQUIPMENT SUPPORTS

- A Conduit supports
- 1 For Individual conduit runs not directly fastened to the structure: Rod hangers
  - 2 For multiple conduit runs: Trapeze type conduit support designed for maximum loading deflection not exceeding manufacturer's recommendations.
- B Materials
- 1 All materials not otherwise noted:
    - a Steel with the finished part hot dipped galvanized
    - b Stainless steel for corrosive or damp environments
  - 2 All bolts and nuts shall be stainless steel.
- C Supports anchored to earth shall be anchored in a concrete base per details.
- D Manufacturers shall be Caddy, Unistrut, Powerstrut, or approved equal.
- E All exposed channels shall have end caps made by the channel manufacturer and designed for use with the channel.

## 2.5 WIRE CONNECTORS

- A For wire size #8 AWG and smaller: Insulated, screw type, rated 105°C, 600V for building wiring and 1000V for fixtures; Scotchlok, Ideal, or approved equal.
- B For wire size #6 AWG and larger: T&B or approved equal screw type with 3M "#33+" or Plymouth "Slipknot Gray" tape insulation.
- C Underground wire splices

- 1 Connect ends of conductors with copper compression connectors, 3M Scotchlok or approved equal.
  - 2 Seal splice with inline resin splice kit approved for weather exposure, direct burial, and wet location; 3M Scotchcast or approved equal.
- D Only set screw, compression type connectors may be used for MC cables. Fish hook/open tang connectors are prohibited.

## 2.6 GROUNDING

- A Ground Rods
- 1 3/4 inch diameter
  - 2 Copper weld type
  - 3 10 feet in length.
- B Ground Wire: Conductors shall be medium-hard drawn, copper, and stranded, with sizes as shown on drawings.
- C Utilize CADWELD Multi-System Exothermic Welding for below grade ground connections.
- D Bolts, nuts, and washers shall be bronze, cadmium plated steel, or other corrosion resistant material approved for the purpose.

## 2.7 MISCELLANEOUS MATERIALS

- A All screws, bolts, nuts, and washers on equipment outdoors or in wet or corrosive environments shall be stainless steel.

## 2.8 SEALANTS

- A General purpose sealant: One part polysulfide or polyurethane, Federal Standard TT-S-00230c or two-part polyurethane, Federal Standard TT-SS-227E of Mameco Vulkem 116 or 227 or approved equal product manufactured by Products Research and Chemical Corporation. Pecora, Sika, Sonneborn, or Tremco may be substituted under provisions of Section 016000.
- B Conduit sealant
- 1 Two part, self curing urethane
  - 2 Non-sagging
  - 3 Liquid and gas tight
  - 4 Chemically stable once cured
  - 5 Compatible with conduit and conductor materials
  - 6 Designed for use as conduit seal
- C Fire retardant sealant: Dow Corning Company, Type 3-6548 silicone RTV foam sealant, closed cell, 18 lb. density, 2-part system with UL certification. Type 96-081 one-part sealant shall be used for small spaces and cracks. 3M Fire Barrier Caulk CP25 is also acceptable.

## 2.9 IDENTIFICATION

- A Nameplates:

- 1 White, acrylic plastic suitable for indoor or outdoor use
  - 2 Face colored as below with engraved, white, 3/16" minimum, Arial or similar font characters
    - a Equipment on normal systems: Black face
    - b Equipment on emergency systems: Red face
  - 3 Clear plastic overlay suitable for indoor or outdoor use that can be replaced if vandalized.
  - 4 Sign shall include device name, voltage, and size.
  - 5 Outdoor nameplates shall be UV stable and fade resistant.
- B Pull line identification tags:
- 1 Aluminum plate
  - 2 1/8" tall (minimum), Arial (or similar) font, identifying text stamped on plate
  - 3 Tags shall describing conduit's length, source, and destination.

### PART 3 – EXECUTION

#### 3.1 GENERAL

- A Electric system layouts indicated on the Drawings are generally diagrammatic, but shall be followed as closely as actual construction and work of other trades will permit. Govern exact routing of cable and wiring and the locations of outlets by the structure and equipment served. Dimensions shall be taken from Architectural Drawings.
- B Consult all other Drawings. Verify scales and report any dimensional discrepancies or other conflicts to architect, or engineer if no architect is involved, before submitting bid.
- C Home runs to panelboards are indicated as starting from the outlet nearest the panel and continuing in the general direction of that panel. Continue such circuits to the panel as though the routes were completely indicated. Terminate homeruns of signal, alarm, and communications system in a similar manner.
- D Avoid cutting and boring holes through structure or structural members wherever possible. Obtain prior approval of Architect and conform to structural requirements when cutting or boring the structure is necessary or permitted.
- E Furnish and install necessary hardware, hangers, blocking, brackets, bracing, runners, required for equipment specified under this section.
- F Provide necessary backing required to insure rigid mounting of outlet boxes.
- G Install pull line in all conduits to remain that will have their conductors removed.

#### 3.2 INSTALLATION OF CONDUIT

- A Run conduit concealed unless otherwise noted or shown on Drawings.
- B Run exposed conduit parallel to or at right angles to center lines of columns and beams.
- C Run no conduit in concrete slabs or floors except at point of penetration. Penetrations shall be at right angles to slab surfaces.
- D Install conduit above ceilings to avoid obstructing removal of ceiling tiles, lighting fixtures, air diffusers, etc.
- E Conduit shall not cross any duct shaft or area designated as future duct shaft. Coordinated with mechanical work to avoid any conflict.

- F Install pull line in empty conduit installed under this contract. Provide and install labels as describe in "Identification" sub-section.
- G Spare conduits shall be capped to prevent intrusion of moisture and foreign objects.
- H Minimum conduit size shall be 1/2 inches when installed above ground and 3/4 inches when installed underground or under building slabs. Increase conduit size as required for wiring. Size for conduit, unless specifically shown otherwise, shall be determined from Table 3 for all conductors, Chapter 9 of latest National Electric Code.
- I Conduit shall be rigid conduit, IMC, EMT, or plastic as follows:
  - 1 Above ground and dry locations: Use rigid conduit, IMC or EMT.
    - a Wet locations: Rigid conduit, IMC.
    - b Locations subject to mechanical injury: Rigid conduit or IMC only.
    - c In concrete walls or block walls: Rigid steel conduit or IMC only.
    - d Dry locations and not subject to mechanical injury: EMT (interior locations only), IMC, or rigid conduit.
  - 2 Underground: Use wrapped rigid steel or plastic.
    - a NOT USED
  - 3 Bends
    - a Make risers to grade with rigid steel long radius sweep conduit and rigid steel elbow fittings only.
    - b Minimum radius of sweeps shall be 24 inches.
- J Burial depth of conduit shall be as follows:
  - 1 NOT USED
- K Use flexible steel conduit in the following applications:
  - 1 Recessed lighting fixtures.
  - 2 Motor connections.
  - 3 Connection between fan plenum and structure.
  - 4 At expansion joints.
  - 5 At transformers and other equipment which produce vibration.
- L Provide junction boxes/pull boxes as required to limit any power system conduit run to a maximum of four (4) 90 degree bends (two (2) 90 degree bends for signal communication system conduit runs) or to avoid "U" bends.
- M Conduit Supports:
  - 1 Support conduit with Underwriters' Laboratories listed conduit support intervals required by the California Electric Code.
  - 2 Wire or sheet metal strips are not acceptable for conduit not directly fastened to structure or for multiple conduit runs.
  - 3 Individual conduit 1/2 inch and 3/4 inch size may be supported from ceiling support wire with Caddy clips only if acceptable to local code. Only one conduit is permitted to be attached to any ceiling support wire. Hang such conduit so as not to affect level of ceiling.
  - 4 Avoid attaching conduit to fan plenums. When it is necessary to support conduit from fan plenum, provide a length of flexible conduit between the section attached to the fan plenum and other sections. Provide a length of flexible conduit between the portion attached to the building to minimize transmission of vibration to the building structure.
- N Conduit penetration of roof, walls, floors and ceilings shall be sealed to preserve the integrity of waterproofing, fire rating and soundproofing for which the roof, wall, floor or

- ceiling is designed. Materials and methods used shall conform to that specified under Architectural sections.
- O Underground conduit and ducts 2 inches and larger shall be proven clear by pulling through a mandrel 1/4 inch smaller than the inside diameter.
  - P Where flush branch circuit panelboards or terminal cabinets are shown on walls, stub a minimum of four (4) 1 inch empty conduit into overhead ceiling spaces and four (4) 1 inch empty conduit into space below floor (if any) in addition to conduit required for circuit wiring.
  - Q Paint all exposed conduit to match its surroundings.
  - R Plastic conduits exposed to sun light shall be UV stabilized.
  - S Where rigid steel conduit runs in direct contact with the earth, conduit shall be wrapped with 10-mil PVC tape to form 40 mil of protection, or shall have factory applied PVC coating.
  - T Label all conduits at each terminus, pull box, and junction box.

### 3.3 INSTALLATION OF WIRE

- A Install all wiring in raceway unless specifically shown or noted otherwise.
- B Pull no wire into any portion of the conduit system until construction work which may damage the wire has been completed.
- C Install wire continuous from outlet to outlet or terminal to terminal. Splices in cables when required shall be made in handholes, pull boxes or junction boxes. Make branch circuit splices in outlet boxes with 8 inches of correctly color-coded tails left in the box.
- D Make splices in wires and cables utilizing specified materials and methods.
- E Cables and wires passing through handholes shall be full looped inside the handhole (360 degree) and supported on galvanized steel racks, beginning 10" above the bottom of the handhole. Leave handhole in clean condition with debris removed.
- F Make ground, neutral, and line connections to receptacle and wiring device terminals as recommended by manufacturer. Provide ground jumper from outlet box to ground terminal of devices when the device is not approved for grounding through the mounting screws.
- G Provide Brady wire markers where number of conductors in a box exceed four (4).
- H Wiring shall be tested for continuity (600V and below). All systems shall be entirely free from grounds, short circuits, and any or all defects.
- I Measure and record the insulation resistance of 600 volt insulated conductors size #4/0 AWG and larger using a 500 volt megger for one minute. Make tests with circuits isolated from source and load.
- J All conductor bends must have a radius greater than or equal to the manufacturer's listed bending radius.
- K Label all conductors at each terminus, pull box, and junction box.

### 3.4 WIRE COLOR CODE

- A Color code conductors. Wire sized #8 AWG and smaller shall have integral color coded insulation. Wire sizes #6 AWG and larger may have black insulation but shall be identified by color coded electrical tape at junction, splice, pull and termination points. Apply color tape with 1/2 lap to at least 6 inches of the conductor.

- B Color code wire as follows:  
Conductors 208/120V 480/277V  
Phase A Black Brown  
Phase B Red Orange  
Phase C Blue Yellow  
Neutral White White or Gray (consistent throughout facility)  
Ground Green Green

### 3.5 CONNECTIONS TO EQUIPMENT

- A General:
- 1 Furnish and install required power supply conduit and wiring to equipment. See below for other wiring required.
  - 2 Furnish and install a disconnect switch immediately ahead of and adjacent to each magnetic motor starter or appliance unless the motor or appliance is located adjacent to and within sight of the serving panelboard, circuit breaker or switch. Verify equipment nameplate current ratings prior to installation.
  - 3 Mount motor starters including those furnished under other sections or specifications, and provide power wiring to them.
  - 4 Install rough-in work for equipment from approved shop drawings to suit the specific requirements of the equipment.
  - 5 Furnish and install magnetic motor starters that are shown on the Drawings or specified under other divisions to be furnished under this division of work. Verify equipment nameplate ratings prior to installation and furnish adequately rated starters for the loads.
  - 6 Furnish and install manual thermal protection for motors not integrally equipped with thermal protection.
  - 7 Furnish and install 120V power to each control panel and time switch requiring a source of power to operate.
- B Heating, ventilating, and air conditioning equipment:
- 1 Coordinate with mechanical contractor for sizes, locations and details of motors, heating units, and control requirements.
  - 2 Provide required power supply conduit and wiring to equipment.
  - 3 Provide a suitable means of disconnect switch immediately ahead of and adjacent to each motor and appliance unless the motor or appliance is located adjacent and within sight of the service panelboard, circuit breaker or switch at a distance allowed by codes. Verify equipment nameplate current ratings prior to installation. Provide a disconnect means at each magnetic motor starter.
  - 4 Provide magnetic motor starters required under this division of work.
  - 5 Provide manual thermal protection for motors not integrally equipped with thermal protection.
  - 6 Line and low voltage temperature control and interlock wiring, conduit, and required connections are a part of other divisions unless specifically shown or noted on the Drawings as to be furnished under this section.
  - 7 Provide 120V power supply to control panels, time switch furnished and installed under other divisions of work.

- 8 Furnish and install 120V power to each duct detector scheduled for operation of fire dampers or shut down of mechanical equipment. Coordinate the exact quantity and locations with the mechanical drawings.
- C Plumbing and other contractor-furnished and Owner-furnished equipment:
- 1 Required power and control conduit, wiring and connections are included under this section of the work. Control sensing and alarm devices will be furnished under the respective section of the contract supplying the equipment unless noted otherwise. These devices will be located in pipes, ducts, vessels, tanks, etc., and will be mounted in a place by the Contractor furnishing the devices. Other devices shall be mounted under this section of the work.
  - 2 Control panels for packaged equipment will be furnished under the respective section of the contract supplying the equipment unless otherwise noted. Installation and connection of the control panels are under this section of the work.

### 3.6 SYSTEM NEUTRAL GROUND

- A NOT USED

### 3.7 EQUIPMENT GROUND

- A Ground non-current carrying metal parts of electrical equipment enclosures, frames, or conductor raceways to provide a low impedance path for line to ground fault current and to bond all non current carrying metal parts together. Install a ground conductor in each raceway system. Equipment ground conductor shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded. Size ground conductors per CEC 250.95 unless otherwise shown on drawings.
- B Grounding conductors shall be identified with green insulation. Where green insulation is not available, on larger sizes, black insulation shall be used and suitably identified with green tape at each junction box or enclosure device.
- C Install metal raceway couplings, fittings and terminations secure and tight to insure good ground continuity. Provide grounding bushing and bonding jumper where metal raceway is not directly attached to equipment metal enclosure and at concentric knockouts.
- D Lighting fixtures shall be securely connected to equipment ground conductors. Outdoor lighting standards shall have a factory installed ground for terminating the ground wire.
- E Motors shall be connected to equipment ground conductors with a conduit grounding bushing and with a bolted solderless lug connection on the metal frame.

### 3.8 STRUCTURAL GROUND

- A NOT USED.

### 3.9 IDENTIFICATION

- A Provide and install nameplates on all switchboards, distribution boards, panels, motor starters, VFDs, transformers, safety switches/disconnects, push buttons, selector switches, pilot lights, and other similar devices. Fasten nameplates to equipment with one sheet metal screw at each corner.



- B Provide and install labels on lighting switches and convenience and special purpose receptacles to show panel and circuit number to which the device is connected.
- C Provide and install identification tags on all conduit pull.
- D Provide label meeting ANSI Z535 standards on motors reading:

**WARNING**  
**AUTOMATIC EQUIPMENT**  
**MAY START AT ANY TIME**

### 3.10 CIRCUIT BREAKER ELECTRICAL COORDINATION STUDY

- A NOT USED

### 3.11 ARC FLASH STUDY

NOT USED

END OF SECTION

**SECTION 26 05 26**  
**GROUNDING AND BONDING**

PART 1 - GENERAL

1.1 SECTION INCLUDES

Materials, equipment fabrication, installation and tests in conformity with equipment applicable to this project, applicable codes and authorities having jurisdiction, for grounding

1.2 RELATED SECTIONS

- A Requirements per the front-end bidding requirements and Section 0100 through 0200.10 inclusive.
- B All included sections under Division 26
- C Plans
- D Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS

Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 16000.

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.

1.5 SUBMITTALS

- A Submit under provisions of Section 01330. Provide detailed description of items supplied, including specifications, performance characteristics, materials, wiring diagrams and schedules.
  - 1 Submit evidence that products satisfy seismic requirements for the State of California.
  - 2 Submit evidence of compliance with the applicable standards listed under Article 1.3 of this section.
- B Manufacturer's Instructions: Submit manufacturer's installation instructions.
- C Product Data: Submit manufacturer's descriptive literature.
- D Shop Drawings: Submit complete fabrication details, elevations and sections of switchboard, dimensions, space available for conduit, rating, short circuit withstand ability of bus and lowest rated device, circuit schedule showing circuit number, device description, device frame ampere rating and trip, fuse clip ampere rating, termination lug

- size, feeder and circuit identification, conductor ratings and one-line and wiring diagrams. Include both elementary diagram and terminal to terminal wiring diagrams.
- E Substitutions: Items of same function and performance shall be in conformance with Division 1.
  - F Submit field test and operations check report for circuit breakers and motor starters under provisions of Section 16080.

## 1.6 OPERATION AND MAINTENANCE DATA

- A Submit operation instructions, maintenance and repair data under provisions of Division 1.
- B Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- C Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- D Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

## PART 2 - PRODUCTS

### 2.1 GROUND RODS

NOT USED

### 2.2 BARE COPPER GROUND WIRE

Conductors shall be medium-hard drawn, copper, and stranded, with sizes as shown on drawings or sized based on the circuit ampacity.

### 2.3 BELOW GRADE GROUND CONNECTIONS

NOT USED

### 2.4 HARDWARE

Bolts, nuts and washers shall be bronze, cadmium plated steel, or other non-corrosive material, approved for the purpose.

## PART 3 - EXECUTION

### 3.1 SYSTEM NEUTRAL GROUND

- A NOT USED.
- B NOT USED.

### 3.2 EQUIPMENT GROUND

- A Ground non-current carrying metal parts of electrical equipment enclosures, frames, or conductor raceways to provide a low impedance path for line-to-ground fault current and to bond all non-current carrying metal parts together. Install a ground conductor in each raceway system. Equipment ground conductor shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded. Size ground conductors per CEC 250-95 unless otherwise shown on drawings.
- B Grounding conductors shall be identified with green insulation. Where green insulation is not available, on larger sizes, black insulation shall be used and suitably identified with green tape at each junction box or enclosure device.
- C Install metal raceway couplings, fittings and terminations secure and tight to insure good ground continuity. Provide grounding bushing and bonding jumper where metal raceway is not directly attached to equipment metal enclosure and at concentric knockouts.
- D Lighting fixtures shall be securely connected to equipment ground conductors. Outdoor lighting standards shall have a factory installed ground for terminating the ground wire.
- E Motors shall be connected to equipment ground conductors with a conduit grounding bushing and with a bolted solderless lug connection on the metal frame.

### 3.3 STRUCTURAL GROUND

- A NOT USED
- B NOT USED
- C NOT USED

### 3.4 CIRCUIT BREAKER ELECTRICAL COORDINATION STUDY

- A NOT USED.
- B NOT USED.

### 3.5 GROUND RESISTANCE TEST

- A NOT USED.
- B NOT USED.

END OF SECTION

**SECTION 26 05 29  
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

**PART 1 – GENERAL**

**1.1 SECTION INCLUDES**

- A. Hangers and supports for electrical equipment and systems.
- B. Construction requirements for concrete bases.

**1.2 RELATED WORK SPECIFIED ELSEWHERE**

- A Division 1
  - 1 Section 013000: Administrative Requirements
  - 2 Section 013300: Submittal Procedures
  - 3 Section 014000: Quality Requirements
  - 4 Section 016000: Product Requirements
  - 5 Section 017000: Execution and Closeout Requirements
  - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D Plans
- E Manufacturers' manuals, product bulletins, etc.

**1.3 REFERENCE STANDARDS AND CODES**

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B American Society for Testing and Materials (ASTM)
  - 1 ASTM A36/A36M: Standard Specification for Carbon Structural Steel
  - 2 ASTM A167: Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
  - 3 ASTM A276: Standard Specification for Stainless Steel Bars and Shapes
  - 4 ASTM A325: Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength
  - 5 ASTM A563: Standard Specification for Carbon and Alloy Steel Nuts
  - 6 ASTM B221: Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
  - 7 ASTM B632: Standard Specification for Aluminum-Alloy Rolled Tread Plate
  - 8 ASTM B633: Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
  - 9 ASTM E488: Standard Test Methods for Strength of Anchors in Concrete Elements
  - 10 ASTM F594: Standard Specification for Stainless Steel Nuts
- C American Welding Society (AWS)
  - 1 AWS D1.1: Structural Welding Code - Steel
- D California Building Safety Codes (CBSC)
  - 1 California Building Code (CBC)

- 2 California Electrical Code (CEC)
- E General Services Administration
  - 1 FF-S-325
  - 2 W-C-582: Conduit, Raceway, Metal and Fittings: Surface
  - 3 WW-H-171: Hanger and Support, Pipe
- F ICC Evaluation Service (ICC-ES)
  - 1 ESR-1917
- G Manufacturers Standardization Society (MSS)
  - 1 MSS SP-58: Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation
  - 2 MSS SP-69: Pipe Hangers and Supports – Selection and Application
- H Metal Framing Manufacturers' Association
  - 1 MFMA-4: Metal Framing Standard Publication
  - 2 MFMA-101: Guidelines for the Use of Metal Framing
- I National Electrical Contractors Association
  - 1 NECA 1: Standard Practice of Good Workmanship in Electrical Construction
  - 2 NECA 101: Standard for Installing Steel Conduits (Rigid, IMC, EMT)
- J Underwriters' Laboratories
  - 1 UL 2239: Hardware for the Support of Conduit, Tubing, and Cable

#### 1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with latest editions of the California Building Code and California Electric Code

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 013000 or 013300.
- B. Submittals shall include the following:
  - 1. Table of contents
  - 2. A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
  - 3. Part numbers
  - 4. Evidence of compliance with the applicable standards listed under Article 1.3 of this section
  - 5. Maintenance instructions and intervals
  - 6. A complete set of drawings for any special items
- C. Electronic submittals shall be searchable
- D. Shop drawings shall be stamped and signed by a licensed structural engineer. Show fabrication and installation details and include calculations for the following:
  - 1. Trapeze hangers: include product data for components
  - 2. Steel slotted channel systems: include product data for components
  - 3. Equipment supports
- E. Welding certificates
- F. The submittal shall be substantially complete for all items and equipment furnished under this section.

- G. Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- H. Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

## 1.6 OPERATION AND MAINTENANCE MANUALS

- A. Submit manuals at close out.
- B. The manuals shall, at minimum, include the following:
  - 1. Manufacturer (including contact information)
  - 2. Model number
  - 3. Load ratings
  - 4. Material type(s)
  - 5. Environmental ratings
  - 6. Maintenance requirements
  - 7. Installation instructions
  - 8. Repair instructions (where applicable)
- C. Provide manuals in one of the following formats
  - 1. Three hardcopies
  - 2. PDF

## 1.7 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

## PART 2 – PRODUCTS

### 2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems
  - 1. Comply with MFMA-4, factory-fabricated components for field assembly.
  - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  - 3. Nonmetallic Coatings:
    - a. PVC, polyurethane, or polyester coating applied according to MFMA-4.
    - b. Minimum thickness shall be 40 mils.

4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
5. Channel Dimensions: Selected for applicable load criteria.
6. Manufacturers:
  - a. Cooper B-Line, Inc.
  - b. ERICO International Corporation
  - c. Hilti Corporation
  - d. Thomas & Betts Corporation
  - e. Unistrut
  - f. Approved equal
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A36/A36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components:
  1. General:
    - a. Anchors shall be steel with corrosion resistant, durable coating or stainless steel
    - b. Select anchors with strength required for anchor and as tested according to ASTM E488.
    - c. Minimum length shall be eight times diameter.
    - d. Tension, shear, and pullout capacities shall be appropriate for supported loads and building materials used
    - e. Post installed anchors must be listed in a current evaluation report issued by one of the following:
      1. International Code Council Evaluation Service (ICC-ES)  
(<http://www.icc-es.org/reports/index.cfm?search=search>)
      2. City of Los Angeles Research Report
  2. Powder-Actuated Fasteners:
    - a. Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood
    - b. Manufacturers:
      1. Hilti Corporation
      2. Simpson Strong-Tie Co., Inc.
      3. Approved equal
  3. Mechanical-Expansion Anchors:
    - a. Insert-wedge-type, stainless steel, for use in hardened portland cement
    - b. Anchors shall meet the descriptive part of Federal Specifications FF-S-325 Group II, Type 2, Class 2, Style 1.
    - c. Anchors shall be equivalent to Hilti Kwik-Bolt TZ.



4. Concrete inserts shall be steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58
5. Clamps for attachment to steel structural elements: MSS SP-58, type suitable for attached structural element
6. Through bolts shall be structural type, hex head, high strength and comply with ASTM A325
7. Toggle Bolts: All-steel springhead type
8. Hanger Rods: Threaded steel

## **2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES**

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials:
  1. Comply with requirements with ASTM A36 (ferrous metals), ASTM A167 and ASTM A276 (stainless steel), and ASTM B221 and B632 (aluminum) for shapes and plates.
  2. Hot dipped galvanized steel
  3. Stainless steel for corrosive areas

## **2.3 CONCRETE BASES**

- A. NOT USED

## **PART 3 – EXECUTION**

### **3.1 APPLICATION**

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by California Electrical Code. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways or Cables:
  1. Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  2. Secure raceways and cables to these supports with two-bolt conduit clamps
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

### **3.2 SUPPORT INSTALLATION**

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in California Electric Code.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (890 N).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code.
  - 1. Wood framing: Fasten with lag screws or through bolts.
  - 2. Light gauge steel framing: self tapping screws
  - 3. Steel beams: beam clamps
  - 4. Concrete: expansion fasteners

### 3.3 CONDUIT SUPPORTS

- A Conduit supports
  - 1 For Individual conduit runs not directly fastened to the structure: Rod hangers
  - 2 For multiple conduit runs: Trapeze type conduit support designed for maximum loading deflection not exceeding manufacturer's recommendations.
  - 3 Wire or sheet metal strips are not acceptable for conduit not directly fastened to structure or for multiple conduit runs.
- B Support conduit with Underwriters' Laboratories listed conduit support intervals required by the California Electric Code.
- C Individual conduit 1/2 inch and 3/4 inch size may be supported from ceiling support wire with Caddy clips only if acceptable to local code. Only one conduit is permitted to be attached to any ceiling support wire. Hang such conduit so as not to affect level of ceiling.
- D Avoid attaching conduit to fan plenums. When it is necessary to support conduit from fan plenum, provide a length of flexible conduit between the section attached to the fan plenum and other sections. Provide a length of flexible conduit between the portion attached to the building and the rest of the conduit run to minimize transmission of vibration to the building structure.
- E Supports anchored to earth shall be anchored in a concrete base per details.

### 3.4 INSTALLATION OF POST-INSTALLED ANCHORS

- A. NOT USED

### 3.5 TESTING AND INSPECTION OF POST-INSTALLED ANCHORS

- 1. NOT USED

### 3.6 PAINTING

- A. Touchup:

1. Clean field welds and abraded areas of shop paint.
  2. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting.
  3. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
  4. Comply with the following requirements
    - a. Architectural painting specifications
    - b. SSPC-PA 1 requirements for touching up field-painted surfaces.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.

**END OF SECTION**

**SECTION 26 08 00**  
**COMMISSIONING OF ELECTRICAL SYSTEMS**

**PART 1 – GENERAL**

**1.1 SECTION INCLUDES**

- A Testing in conformity with equipment applicable to this project, applicable codes and authorities having jurisdiction
- B Test equipment requirements listed in this section shall apply to testing required by all other sections in Division 26 and Division 27.

**1.2 RELATED WORK SPECIFIED ELSEWHERE**

- A Division 1
  - 1 Section 013000: Administrative Requirements
  - 2 Section 013300: Submittal Procedures
  - 3 Section 014000: Quality Requirements
  - 4 Section 016000: Product Requirements
  - 5 Section 017000: Execution and Closeout Requirements
  - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D Plans
- E Manufacturers' manuals, product bulletins, etc.

**1.3 REFERENCE STANDARDS AND CODES**

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B California Electrical Code
- C International Electrical Testing Association (NETA)
  - 1 NETA ATS: for Acceptance Testing Specifications for Electrical Power Equipment and Systems
- D Institute of Electrical and Electronic Engineers
  - 1 IEEE 81: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System Part 1: Normal Measurements
  - 2 IEEE 82: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
  - 3 IEEE 95: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
  - 4 IEEE 112: Standard Test Procedure for Polyphase Induction Motors and Generators
  - 5 IEEE 142: Recommended Practice for Grounding of Industrial and Commercial Power Systems
  - 6 IEEE 241: Recommended Practice for Electric Power Systems in Commercial Buildings

- 7 IEEE 242: Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (IEEE Buff Book)
- 8 IEEE 259: Standard Test Procedure for Evaluation of Systems of Insulation for Dry-Type Specialty and General-Purpose Transformers
- 9 IEEE 393: Test Procedures for Magnetic Cores
- 10 IEEE 399: Recommended Practice for Industrial and Commercial Power Systems Analysis (Brown Book)
- 11 IEEE 442: Guide for Soil Thermal Resistivity Measurements
- 12 IEEE 495: Guide for Testing Faulted Circuit Indicators
- 13 IEEE 576: Recommended Practice for Installation, Termination, and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications
- E National Institute of Standards and Technology (NIST)
- F Underwriters' Laboratories
  - 1 UL 1244: Electrical and Electronic Measuring and Testing Equipment
  - 2 UL 1436: Outlet Circuit Testers and Similar Indicating Devices
  - 3 UL 61010-2-030: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits
  - 4 UL 61010B-1: Electrical Measuring and Test Equipment – Part 1: General Requirements
  - 5 UL 61010B-2-031: Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2: Particular Requirements for Hand-Held Probe Assemblies for Electrical Measurement and Test
  - 6 UL 61010B-2-032: Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2: Particular Requirements for Hand-Held Current Clamps for Electrical Measurement and Test

#### 1.4 QUALITY ASSURANCE

- A The Contractor shall engage and pay for the services of a recognized independent testing laboratory for the purpose of performing inspections and tests as herein specified.
- B The testing laboratory shall provide all material, equipment, labor and technical supervision to perform switch tests and inspections.
- C It is the intent of these tests to assure that all electrical equipment, both Contractor and Owner supplied, is operational within industry and manufacturer's tolerances and is installed in accordance with design specifications.
- D The tests and inspections shall determine the suitability for energizing.
- E Schedule tests and give a minimum of two weeks advance notice to the Owner.

#### 1.5 SUBMITTALS

- A List of tests preformed
- B Test procedures
- C Test results
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted

for review.

## **1.6 QUALIFICATIONS OF TESTING AGENCY**

The testing agency shall meet federal OSHA criteria for accreditation of testing laboratories, Standard Number 1910.7 (Definition and Requirements for a nationally recognized testing laboratory). International Electrical Testing Association (NETA) accreditation constitutes proof of meeting such criteria.

## **1.7 TEST INSTRUMENT TRACEABILITY**

- A The testing laboratory shall have a calibration program which maintains all applicable test instrumentation within rated accuracy.
- B The accuracy shall be traceable to the National Institute of Standards and Technology (NIST) in an unbroken chain.
- C Instruments shall be calibrated in accordance with the following frequency schedule:
  - 1 Field instruments: 6 months maximum.
  - 2 Laboratory instruments: 12 months.
  - 3 Leased specialty equipment: 12 months
- D Dated calibration labels shall be visible on all test equipment.

## **1.8 FINAL SETTINGS**

- A The test report shall include the following: summary of project, description of equipment tested, description of test, list of test equipment used in calibration and calibration date, test results, conclusions and recommendations, and appendix, including appropriate test forms.
- B The test report shall be bound and its contents certified.
- C Submit three copies of the completed report to the architect, or engineer if no architect is involved, no later than fifteen (15) days after completion of test, unless otherwise directed.

## **1.9 FAILURE TO TEST**

- A Any system material or workmanship which is found defective on the basis of acceptance tests shall be reported directly to the architect or engineer if no architect is involved.
- B Contractor shall replace the defective material or equipment and have test repeated until test proves satisfactory without additional cost to the Owner.

## **PART 2 – PRODUCTS: [NOT USED]**

## **PART 3 – EXECUTION**

### **3.1 GROUND RESISTANCE TEST**

- A NOT USED

### **3.2 MISCELLANEOUS TESTING**

A NOT USED.

### **3.3 ELECTRICAL DISTRIBUTION EQUIPMENT OPERATIONAL CHECK**

- A Electrical distribution equipment operational check includes main switchboards, distribution boards, panelboards, panels, switchgear, etc.
- B Verify proper operating condition of all equipment mechanically and electrically including, but not limited to verifying operation of each circuit breaker trip device with a rating of 100A or more using an accurately metered timed instrument (by passing 300% rated current through each pole).
- C If any equipment is found defective during operational check, it shall be replaced by the Contractor without cost to the Owner. The tests shall be repeated by the Contractor without cost to the owner until satisfactory results are obtained.

**END OF SECTION**

**SECTION 26 50 00**  
**LIGHTING**

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction, for lighting fixtures and installation.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
  - 1 Section 013000: Administrative Requirements
  - 2 Section 013300: Submittal Procedures
  - 3 Section 014000: Quality Requirements
  - 4 Section 016000: Product Requirements
  - 5 Section 017000: Execution and Closeout Requirements
  - 6 All other included sections under Division 1
- B All included sections under Division 26
- C Plans
- D Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A. Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B. NFPA 70 - National Electrical Code
- C. Illuminating Engineering Society: The Lighting Handbook
- D. Underwriters' Laboratories
  - 1. UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
  - 2. UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
  - 3. UL 496: Lampholders
  - 4. UL 542: Fluorescent Lamp Starters
  - 5. UL 844: Standard for Luminaires for Use in Hazardous (Classified) Locations
  - 6. UL 924: Emergency Lighting and Power Equipment
  - 7. UL 935: Fluorescent Lamp Ballasts
  - 8. UL 1029: High Intensity Discharge Lamp Ballasts
  - 9. UL 1029A: Igniters and Related Auxiliaries for HID Lamp Ballasts
  - 10. UL 1149: Standard for Low Voltage Marine Lighting Fixtures
  - 11. UL 1196: Standard for Floating Waterlights
  - 12. UL 1573: Stage and Studio Luminaires and Connector Strips
  - 13. UL 1574: Track Lighting Systems
  - 14. UL 1598: Luminaires
  - 15. UL 1598B: Standard for Supplemental Requirements for Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires
  - 16. UL 1598C: Light Emitting Diode (LED) Retrofit Luminaire Conversion Kits
  - 17. UL 1680: Stage and Lighting Cables



18. UL 1838: Low Voltage Landscape Lighting Systems
19. UL 2007A: Shatter Containment Of Lamps For Use In Regulated Food Establishments
20. UL 2108: Low Voltage Lighting Systems
21. UL 2388: Standard for Flexible Lighting Products
22. UL 2575: Standard for Lithium Ion Battery Systems for Use in Electric Power Tool and Motor Operated, Heating and Lighting Appliances
23. UL 8750: Light Emitting Diode Equipment for Use in Lighting Products
24. UL 60730-2-3: Automatic Electrical Controls for Household and Similar Use – Part 2: Particular Requirements for Thermal Protectors for Ballasts for Tubular Fluorescent Lamps

#### 1.4 QUALITY ASSURANCE

- A. Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B. Supply equipment and accessories new, free from defects.
- C. Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D. Items of a given type shall be the products of the same manufacturer.
- E. Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- F. Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- G. Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 013000 or 013300.
- B. Submittals shall include the following:
  1. Table of contents
  2. A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
  3. Part numbers
  4. Evidence of compliance with the applicable standards listed under Article 1.3 of this section
  5. Maintenance instructions and intervals
  6. Calibration procedures and intervals
  7. A complete set of drawings for any special items
  8. Wiring diagrams
  9. Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C. Electronic submittals shall be searchable
- D. The submittal shall be substantially complete for all items and equipment furnished under this section.

- E. Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F. Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.
- G. Pole mounted fixtures, including complete data on the pole material, finish, handholes, anchoring and attachment. Support method shall be submitted for interior fixtures weighing more than fifty (50) pounds.

## 1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
  - 1 Manufacturer (including contact information)
  - 2 Model number
  - 3 Programming manual (where applicable)
  - 4 Wiring diagrams
  - 5 Trouble-shooting guidelines (where applicable)
  - 6 Voltage ratings
  - 7 Current ratings
  - 8 Calibrated range (where applicable)
  - 9 List of capabilities
  - 10 Environmental ratings
  - 11 NEMA enclosure type
  - 12 Maintenance requirements
  - 13 Installation instructions
  - 14 Repair instructions (where applicable)
- C Provide manuals in one of the following formats
  - 1 Three hardcopies
  - 2 PDF

## PART 2 – PRODUCTS

### 2.1 GENERAL

- A. Furnish and install all fixtures complete, including lamps, ballasts, whips, conductors, etc. and ready for service.
- B. Fixture Designation: Fixtures are designated on Drawings by means of letters. See Lighting Fixture Schedule. Where only one (1) fixture designation appears in a room or area, that designation applies to all fixtures in that room or area.
- C. Tandem wired units acceptable where appropriate.
- D. Manufacturers and models for fixtures, ballasts, and lamps shall be as shown on the fixture schedule or approved equal.

### 2.2 FIXTURES

- A Linear fixtures

- 1 Fixture housings shall be steel.
  - 2 Housing shall be painted after fabrication with white, electro-statically deposited paint. Housing shall be completely covered with paint to prevent corrosion.
- B All lenses shall be clear, prismatic, 0.125", K12 pattern, acrylic lenses.
- C Louvers shall be semi-specular aluminum.
- D Open can light reflectors shall be semi-specular aluminum.
- E Fixtures installed in gyms and similar rooms, locker rooms, storage rooms, and warehouses shall include stainless steel wireguards to protect fixture from damage.
- F Fixtures shall direct a minimum of 75% of light within zone below 30 degrees below horizontal.

## 2.5 EXIT SIGNS

- A. All exit signs shall be connected to an unswitched source.
- B. Colors
1. Face shall be white.
  2. Letters and arrows shall be green.
- C. Exit signs shall have arrows to indicate direction of exit where necessary.
- D. All exit signs shall include batteries to provide 90 minutes of illumination in the event of a power outage.

## 2.6 FIXTURE HANGERS AND SUPPORTS

- A. Provide proper supports and mounting accessories, such as hangers, stems, yokes, plaster frames, etc., as required by the type of ceiling installed.
- B. Where pendant mounted fixtures with stems are specified, provide swivel canopies or ball aligners in order to hang plumb regardless of ceiling slope.
- C. Entire assemblies shall comply with state earthquake resistance/ bracing guidelines.

## 2.7 GROUNDING

- A All fixtures shall be grounded.

## 2.9 LIGHTING CONTROLS

Refer to plans.

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. Verify ceiling type and conditions. Order fixtures designed for conditions and the type of ceiling installed.
- B. Architectural reflected ceiling plans shall be used to determine exact locations of lighting fixtures.

- C. Determine exact location and height of fixtures by the structural and mechanical limitations of the building. Install fixtures in such a manner as to avoid such obstructions and to give proper illumination result. Verify layouts with architect.
- D. All recessed lighting fixtures shall be wired from adjacent junction boxes utilizing 6' flexible metal conduit to permit future fixture relocation. Outlet box for surface or stem mounted fixtures shall be provided with fixture stud as well as tapped and drilled canopy covers. All outlets shall finish flush with walls or ceiling except where in ceiling tiles, locate these in the center of a tile or at the intersection of four (4) tiles.
- E. All building mounted fixtures shall be supported from the building structural members. Provide all necessary blocking and hardware so that fixtures installed suspended below grid type ceiling shall be supported independently of the grid system at a minimum of four (4) points per 4' long fixture.
- F. Minimum mounting provisions for closed ceiling (surface) mounted fluorescent lighting fixtures in ceilings other than grid type shall be as follows:
  - 1. 4' long fixture body: By a pair of 3/8" machine bolts separated by a maximum distance possible and located 4 inches in from each end of fixture - total of four (4) bolts per fixture.
- G. Support for fixtures installed in suspended ceilings shall conform to Section 4701 of Title 24, Part 2.
- H. When installed in grid type ceiling, a slack #12 gauge galvanized tie wire permanently attached to the structure shall be provide at four (4) corners of each 4' long fixture.
- I. At fire rated ceiling, provide sheet rock at top and at all sides of recessed mounted lighting fixtures.
- J. Ground all fixtures.

END OF SECTION

**SECTION 27 15 00**  
**COMMUNICATIONS EQUIPMENT ROOM FITTINGS**

**PART 1 – GENERAL**

**1.1 SECTION INCLUDES**

The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context ‘good quality’ means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.

The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.

**1.2 RELATED WORK SPECIFIED ELSEWHERE**

- A Division 1
  - 1 Section 013000: Administrative Requirements
  - 2 Section 013300: Submittal Procedures
  - 3 Section 014000: Quality Requirements
  - 4 Section 016000: Product Requirements
  - 5 Section 017000: Execution and Closeout Requirements
  - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D Plans
- E Manufacturers’ manuals, product bulletins, etc.

**1.3 REFERENCE STANDARDS AND CODES**

- A. Governing Codes and Conflicts: If the requirements of the Construction Documents exceed those of the governing codes and regulations, then the requirements of the Construction Documents shall prevail. Where a conflict exists, the governing codes and ordinances shall supersede all other requirements.
- B. ANSI: American National Standards Institute (ANSI)
- C. CEC: California Electrical Code
- D. Electronic Components Association (ECA)
  - 1. ECA-310-E: Cabinets, Racks, Panels, and Associated Equipment
- E. Institute of Electrical and Electronic Engineers (IEEE)
  - 1. IEEE 802.3: IEEE Standard for Ethernet
  - 2. IEEE 802.3ad: Link Aggregation
  - 3. IEEE 802.3ae: 10 Gigabit Ethernet
  - 4. IEEE 802.3af: Power over Ethernet
  - 5. IEEE 802.3at: Enhanced Power over Ethernet
- F. Telecommunications Industries Association (TIA)

1. TIA-455: General Requirements for Standard Test Procedures for Optical Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices, and Other Fiber Optic Components
  2. TIA-472-0000: Generic Specification for Fiber Optic Cable
  3. TIA-472-C000: Sectional Specification for Fiber Optic Communications Cable for Indoor Use
  4. TIA-472-F000: Sectional Specification for Optical Fiber Drop Cable
  5. TIA-492-0000: Generic Specification for Optical Fibers
  6. TIA-492-CAAB: Detailed Specification for Class IVA, Dispersion-Unshifted, Single-Mode, Optical Fibers with Low Water Peak
  7. TIA-526: Standard Test Procedures for Fiber Optic Systems
  8. TIA-526-2: Effective Transmitter Output Power Coupled into Single-Mode Fiber Optic Cable
  9. TIA-526-14: Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant
  10. TIA-526-19: Optical Signal-to-Noise Ratio Measurement Procedures for Dense Wavelength – Division Multiplexed Systems
  11. TIA-568-C: Commercial Building Telecommunications Standard
  12. TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises
  13. TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
  14. TIA-568-C.2: Balanced Twisted-Pair Telecommunications Cabling and Components Standards
  15. TIA-568-C.3: Optical Fiber Cabling Components Standard
  16. TIA-569-C: Commercial Building Standard for Telecommunications Pathways and Spaces
  17. TIA-604: Fiber Optic Connector Intermateability Standards
  18. TIA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
  19. TIA-607-B: Commercial Building Grounding and Bonding Requirements for Telecommunications
  20. TIA-TSB-36: Technical Systems Bulletin Additional Cable Specifications for Unshielded Twisted-Pair Cables
  21. TIA-TSB-62: Informative Test methods for Fiber-Optic Fibers, Cables, Opto-Electronic Sources and Detectors, Sensors, Connecting and Terminating Devices, and Other Fiber-Optic Components
  22. TIA-TSB-63: Reference Guide for Fiber Optic Test Procedures
  23. TIA-TSB-149: Generic Workmanship Guidelines for Fiber Optic Connector Interoperability
  24. TIA-TSB-4979: Practical Considerations for Implementation of Encircled Flux Launch Conditions in the Field
- G. Underwriters Laboratories, Inc.
1. UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
  2. UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
  3. UL 489A: Circuit Breakers for Use in Communications Equipment
  4. UL 497: Protectors for Paired-conductor Communications Circuits
  5. UL 497A: Secondary Protectors for Communications Circuits
  6. UL 497B: Protectors for Data Communications and Fire Alarm Circuits

7. UL 497D: Component Secondary Protectors for Communications Circuits Used With Specified Voltage Suppression
8. UL 1449: Surge Protective Devices
9. UL 1651: Standard for Optical Fiber Cable
10. UL 1690: Standard for Data-Processing Cable
11. UL 1863: Communications Circuit Accessories
12. UL 1977: Component Connectors for Use in Data, Signal, Control, and Power Applications
13. UL 2024: Standard for Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies
14. UL 2269: Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
15. UL 2416: Audio/Video, Information, and Communication Technology Equipment Cabinet, Enclosure, and Rack Systems
16. UL 2564: Low Voltage Surge Withstand Telecommunications Overcurrent Protector Components
17. UL 2570: Low Voltage Surge Withstand Telecommunications Electronic Current Limiters
18. UL 60950-1: Information Technology Equipment Safety – Part 1: General Requirements
19. UL 60950-22: Information Technology Equipment - Safety - Part 22: Equipment to be Installed Outdoors
20. UL 62368-1: Audio/video, information and communication technology equipment - Part 1: Safety requirements

#### 1.4 QUALITY ASSURANCE

- A Contractor requirements:
- 1 The Contractor shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
  - 2 Project Manager
    - a The Project Manager shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
    - b The contractor shall make the project manager available to the Owner/Owner's Representative before the start of this project for an interview. This person must be deemed acceptable by the Owner and/or their Representative before work can begin.
    - c Project Manager will be required to be available for scheduled on site project meetings at no additional cost to the Owner.
    - d Project Manager will be required to be available to meet on site with the Owner/Owner's representative with a minimum of 24 hours notice for non- emergency issues, and a minimum of 4 hours for emergency issues at no additional cost to the Owner.
  - 3 The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context 'good quality' means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.

- 4 The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.
- B Material requirements
  - 1 All material and equipment to be installed on this project will be new and free from defects.
  - 2 Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
  - 3 New material shall meet the following requirements.
    - a Manufactured within one year of the installation date.
    - b Undamaged
    - c Not previously installed
    - d Delivered to jobsite in original packaging
    - e No corrosion or other degradation of material
    - f In factory condition
    - g Unmodified
  - 4 If used material or equipment has been installed on this project the Contractor shall replace said materials and/or equipment with new products at no additional cost to the Owner.
  - 5 Equipment and accessories shall be in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
  - 6 Items of a given type shall be the products of the same manufacturer.
  - 7 Deliver, store and protect products under provisions of Section 016200.
  - 8 Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
  - 9 Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
  - 10 Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.
- C Contractor shall warranty all materials, equipment, and workmanship for a minimum of one (1) year.
  - 1 Warranty shall provide repair/replacement of all defective or improperly installed materials at no additional cost to the Owner (including all costs to repair or replace the item(s)).
  - 2 Contractor shall provide a competent service technician and new materials to repair/replace defective items no later than 24 hours after notification.

## 1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
  - 1 Table of contents
  - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
  - 3 Part numbers



- 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
  - 5 Maintenance instructions and intervals
  - 6 A complete set of drawings for any special items
  - 7 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
  - 8 Wiring diagrams
  - 9 Illustrations and scale drawing of the racks, equipment layouts etc.
  - 10 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

## 1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
- 1 Table of contents
  - 2 Manufacturer (including contact information)
  - 3 Model number
  - 4 Programming manual (where applicable)
  - 5 Wiring diagrams
  - 6 Trouble-shooting guidelines (where applicable)
  - 7 Voltage ratings
  - 8 Current ratings
  - 9 Calibrated range (where applicable)
  - 10 List of capabilities
  - 11 Environmental ratings
  - 12 NEMA enclosure type
  - 13 Maintenance instructions and intervals
  - 14 Calibration procedures and intervals
  - 15 Installation instructions
  - 16 Repair instructions (where applicable)
  - 17 As-built drawings
- C Provide manuals in one of the following formats
- 1 Three hardcopies
  - 2 PDF

## 1.7 DEFINITIONS

- A. Horizontal Cross-connect (HC) A cross-connect of horizontal cabling to other cabling (e.g. horizontal, backbone, or equipment).

- B. Intermediate distribution frame (IDF): An intermediate distribution of horizontal cabling to other cabling (e.g. horizontal, backbone, or equipment).
- C. Main Cross-connect (MC): A cross connect for, 1<sup>st</sup> level backbone cables, entrance cables, and equipment cables. The Main Cross-connect is often co-located in the building Entrance Facility (EF) and/or Equipment Room (ER) and consisting of riser cable terminals, utility service cables terminals, PBS terminals, and other equipment.
- D. Main Distribution Frame (MDF): A main distribution for, 1<sup>st</sup> level backbone cables, entrance cables, and equipment cables. The Main Distribution-frame is often co-located in the building Entrance Facility (EF) and/or Equipment Room (ER) and consisting of riser cable terminals, utility service cables terminals, PBS terminals, and other equipment.

## **PART 2 – PRODUCTS**

### **2.1 GENERAL**

- A. All IDF, MDF, et cetera shall be enclosed unless open racks are called out on the plans.
- B. Top of wall mounted IDFs shall be 18” below ceiling.
- C. Provide all necessary mounting hardware.
- D. All material shall be UL listed for its application.

### **2.2 ENCLOSURES AND RACKS**

- A. Manufacturers
  - 1. APC
  - 2. Black Box
  - 3. Chatsworth Products, Inc.
  - 4. Cooper B-Line
  - 5. Hoffman Enclosures
  - 6. Hubbell Premise Wiring
  - 7. Southwest Data Products
- B. Intermediate Distribution Frames
  - 1. Four posts: Front and rear pairs of 3” deep C-shaped equipment mounting channels, 19” wide
  - 2. Minimum of 45 rack units
  - 3. 2000 pound static load capacity
  - 4. Provisions for anchoring to floor
  - 5. Zone 4 Seismic rated
- C. Cabinets
  - 1. General
    - a. Material: Steel
    - b. Hinges shall be reversible to allow swing open from the right or left.
    - c. The front door shall have rounded edges and corners.
    - d. Floor mounted cabinets shall have locking front and rear doors.
  - 2. Enclosed rack/cabinet in cooled room

- a. Top mounted ventilation fan(s)
    - 1) Minimum flow rate of 450 CFM for MDF cabinet
    - 2) Minimum flow rate of 225 CFM for IDF cabinet
  - b. MDF cabinets shall include 250 CFM enclosure blower.
  - c. Ventilation openings in sides or front
  - d. MDF cabinets shall have locking, mesh front and rear doors.
  - e. IDF cabinets shall have a locking front door with smoked poly-methyl-methacrylate window.
  - f. Install temperature switch in cabinet to turn the fan on at 100°F and off at 90°F.
3. Coating
- a. The completed rack or cabinet shall be degreased and cleaned.
  - b. After the cleaning process is finished, the rack or cabinet shall be phosphatized.
  - c. After the phosphatizing, the rack or cabinet shall receive an electrostatic deposition of polyester powder coating followed by baking to produce a hard durable finish.
    - 1) The minimum thickness of the paint film shall be 2.0 mils.
    - 2) Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
  - d. Finish shall conform to UL 50 and UL 50E.
  - e. Color shall be black for interior locations and ANSI 61 gray for exterior locations.
  - f. Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating.
- D. Each rack unit space shall be identified on the racks/posts.
- E. The contractor shall calculate space requirements prior to ordering equipment. If the specified enclosure or rack is not large enough, the contractor shall order the size required for the equipment to be installed.

### 2.3 COPPER PATCH PANELS

- A. 48 Port, Category 6 patch panel: Panduit #CPP48WBLY
- B. Data ports
  1. RJ45 design
  2. Terminate 26AWG to 22 AWG, stranded or solid, Cat-6 cables without punch-down tool
  3. Suppress alien cross-talk
  4. Maintain 10GB/S performance in 48 port, 1RU patch panels
  5. T568B wiring scheme
  6. Meet or exceed Cat-6 requirements of TIA-568-C.2 and IEEE 802.3an.
  7. Compatible with IEEE 802.3at POE+
  8. Snap in, snap out modular design
  9. Conductor retention and strain relief
  10. Gold plated contacts
  11. Manufacturer and models
    - a. Blue: Panduit #CJ688TGBU

12. Ports in patch panels shall be grouped by use (data, VOIP, clock/public address, etc.)
- C. Patch cords
  1. RJ45 design
  2. Four twisted, unshielded, 23 AWG, solid pairs (23 AWG UTP)
  3. Suppress alien cross-talk
  4. Maintain 10GB/S performance
  5. T568B wiring scheme
  6. Meet or exceed Cat-6A requirements of TIA-568-C.2 and IEEE 802.3an.
  7. SRL, Attenuation and NEXT results shall use Sweep Frequency test per TIA-568-C.
  8. Compatible with IEEE 802.3at POE+
  9. Snagless latch on plugs
  10. Length shall be 12 inches
  11. Manufacturer and model: Panduit #UTPSP1BUY
- D. Quantity: provide and install sufficient patch panels and patch cords to accommodate all devices with 24 spare ports.
- E. Port identification: Panduit #C061X030FJJ

## **2.4 FIBER OPTIC PATCH CABLES**

- A. NOT USED

## **2.7 GROUNDING AND BONDING**

- 1 NOT USED

## **2.8 SURGE SUPPRESSION**

- A. NOT USED

## **PART 3 – EXECUTION**

### **3.1 INSTALLATION**

- A Cabinets, racks, and enclosures
  - 1 Mount all cabinets and racks to walls or floors according to the Typical Electrical Details.
  - 2 Rack mount screws not used for installing patch panels and other hardware shall be bagged and left with the rack upon completion of the installation.
- B Cable trays
  - 1 Cable trays must be securely attached to walls, backboards, and racks/cabinets to comply with all Zone 4 seismic requirements.

- 2 Cable trays shall be installed so that there is a minimum of 8” of unobstructed clearance above rack.
  - 3 Cable trays shall be installed so that there is a minimum of 12” of clearance from all florescent lighting, electrical conduits/circuits, and fire alarm conduits/devices.
- C Rack mounted equipment
- 1 Securely fasten all rack mounted equipment to each rack rail with a minimum of two screws per rail and according to manufacturers’ recommendations.
  - 2 Patch panels shall be mounted to front pair of rack rails.
  - 3 PDUs shall be mounted to rear pair of rack rails.
  - 4 All other equipment shall be mounted to both pairs of rack rails.
  - 5 Alternate patch panels and switches so that each port in the patch panel is adjacent to the corresponding port in the switch.
- D Cable management
- 1 Install vertical cable management raceways on each post of freestanding racks.
  - 2 Install fiber optic storage ring on backboard behind each IDF/MDF or in rear of IDF cabinet. Loop each fiber optic cable round ring 3 times. Install ID tag on loop of each cable.
- E Grounding and Bonding
- 1 Each MDF and IDF shall be equipped with a grounding busbar.
  - 2 Each grounding busbar shall be connected to the building electrical grounding facility per plans.
  - 3 All metallic equipment, including but not limited to, each rack, metallic backboard, cable sheath, metallic strength member, splice case, cable tray shall be grounded to its respective grounding busbar using a minimum #6 AWG stranded copper bonding conductor with a green insulation and compression connectors.
  - 4 Wall mounted grounding busbars
    - a Attach busbars to the wall with appropriate hardware according to the manufacturer’s installation instructions and Typical Electrical Details.
    - b Conductor connections to the grounding busbar shall be made with two-hole bolt-on compression lugs sized to fit the busbar and the conductors.
    - c Each lug shall be attached with stainless steel hardware after preparing the bond according to manufacturer recommendations and treating the bonding surface on the busbar with antioxidant to help prevent corrosion at the bond.
    - d The wall-mounted busbar shall be bonded to ground as part of the overall Telecommunications Bonding and Grounding System.
  - 5 Rack-Mount Busbars and Ground Bars
    - a Each rack and cabinet shall be equipped with a vertical grounding busbar.
    - b Attach rack-mount busbars and ground bars to racks according to the manufacturer’s installation instructions.
    - c Bond the rack-mount grounding busbar to the rack, cabinet, and room’s grounding busbar with appropriately sized hardware and conductor.
  - 6 Equipment Ground Jumper Kit

- a Bond equipment to a vertical rack-mount grounding busbar using ground jumper according to the manufacturer's recommendations.
  - b Clean the surface and use antioxidant between the compression lugs on the jumper and the rack-mount grounding busbar to help prevent corrosion at the bond.
- F Program UPSs, PDUs, and software to set alarms for current overload, temperature out of limits, and humidity out of limits and send email notification of alarm conditions.

### **3.2 LABELING**

- A. The contractor shall follow the Owner's labeling scheme.
- B. Each IDF and MDF shall be labeled.
- C. Each IDF, MDF, patch panel, port, switch, and cable shall have a unique identification.
- D. Label each port on the patch panel and faceplate with its identification.
- E. Label each cable at its beginning and end points no further than 6" behind termination on a section of cable that is easily accessible. Cable labels shall include the ids of both terminations and cable id.
- F. Label the plug end of each power cord with id of equipment it feeds.
- G. Each faceplate shall be machine labeled. The labeling shall be placed on the faceplate so that the individual jack can be clearly identified by its associated label.
- H. All labels shall be machine printed. Handwritten labels are not acceptable.
- I. All labeling information shall be recorded on the as-built drawings and all test documents.

### **3.3 SYSTEM CLOSEOUT AND AS-BUILT DOCUMENTATION**

- A Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
- B Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.
- C The Owner's Representative/Engineer will request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
- D Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable

- (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, a bi-annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
- E Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.
- F When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.
- G The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
- H Contractor will provide one laminated 11"x17" drawing at each IDF and MDF that includes the building layout for that IDF or MDF, along with the outlet locations and all of the approved labeling.

**END OF SECTION**

**SECTION 27 15 00**  
**COMMUNICATIONS HORIZONTAL CABLING**

**PART 1 – GENERAL**

**1.1 SECTION INCLUDES**

This section includes material and workmanship requirements for data, telephone (analog and VOIP), IP clocks, and IP speakers horizontal cabling.

**1.2 RELATED WORK SPECIFIED ELSEWHERE**

- A Division 1
  - 1 Section 013000: Administrative Requirements
  - 2 Section 013300: Submittal Procedures
  - 3 Section 014000: Quality Requirements
  - 4 Section 016000: Product Requirements
  - 5 Section 017000: Execution and Closeout Requirements
  - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D Plans
- E Manufacturers' manuals, product bulletins, etc.

**1.3 REFERENCE STANDARDS AND CODES**

- A. Governing Codes and Conflicts: If the requirements of the Construction Documents exceed those of the governing codes and regulations, then the requirements of the Construction Documents shall prevail. Where a conflict exists, the governing codes and ordinances shall supersede all other requirements.
- B. ANSI: American National Standards Institute (ANSI)
- C. CEC: California Electrical Code
- D. Institute of Electrical and Electronic Engineers (IEEE)
  - 1. IEEE 802.3: IEEE Standard for Ethernet
  - 2. IEEE 802.3ad: Link Aggregation
  - 3. IEEE 802.3af: Power over Ethernet
  - 4. IEEE 802.3at: Enhanced Power over Ethernet
- E. Insulated Cable Engineers Association (ICEA)
  - 1. ICEA S-84-608: Telecommunications Cables, Filled Polyolefin Insulated, Copper Conductor
  - 2. ICEA S-102-700: ICEA Standard for Category 6 Individually Unshielded, Twisted Pair Indoor Cables (With or Without an Overall Shield) for Use in Communications Wiring Systems Technical Requirements
- F. Telecommunications Industries Association (TIA)
  - 1. TIA-568-C: Commercial Building Telecommunications Standard
  - 2. TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises
  - 3. TIA-568-C.1: Commercial Building Telecommunications Cabling Standard



4. TIA-568-C.2: Balanced Twisted-Pair Telecommunications Cabling and Components Standards
  5. TIA-569-C: Commercial Building Standard for Telecommunications Pathways and Spaces
  6. TIA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
  7. TIA-607-B: Commercial Building Grounding and Bonding Requirements for Telecommunications
  8. TIA-758-B: Customer Owned Outside Plant Telecommunications Infrastructure Standard
  9. TIA-1152: Requirements for Field Test Instruments and Measurements for Balanced Twisted Pair Cabling
  10. TIA-1183: Measurement Methods and Test Fixtures for Balun-less Measurement of Balanced Components and Systems
  11. TIA-TSB-36: Technical Systems Bulletin Additional Cable Specifications for Unshielded Twisted-Pair Cables
  12. TIA-TSB-67: TIA Telecommunications Systems Bulletin, Additional Transmission Specifications for Unshielded Twisted-Pair Connecting Hardware
  13. TIA-TSB-184: Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling
  14. TIA-TSB-1197: Mode Conversion Parameters for Balanced Twisted Pair Cabling
- G. Underwriters Laboratories, Inc.
1. UL 444: Communications Cables
  2. UL 1666: Standard for Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
  3. UL 1690: Standard for Data-Processing Cable
  4. UL 1863: Communications Circuit Accessories
  5. UL 1977: Component Connectors for Use in Data, Signal, Control, and Power Applications
  6. UL 2024: Standard for Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies
  7. UL 2269: Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
  8. UL 62368-1: Audio/video, information and communication technology equipment - Part 1: Safety requirements

## 1.4 QUALITY ASSURANCE

- A Contractor requirements:
- 1 The Contractor shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
  - 2 Project Manager
    - a The Project Manager shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
    - b The contractor shall make the project manager available to the Owner/Owner's Representative before the start of this project for an interview. This person must be deemed acceptable by the Owner and/or their Representative before work can begin.

- c Project Manager will be required to be available for scheduled on site project meetings at no additional cost to the Owner.
    - d Project Manager will be required to be available to meet on site with the Owner/Owner's representative with a minimum of 24 hours notice for non- emergency issues, and a minimum of 4 hours for emergency issues at no additional cost to the Owner.
  - 3 The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context 'good quality' means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
  - 4 The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.
- B Material requirements
  - 1 All material and equipment to be installed on this project will be new and free from defects.
  - 2 Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
  - 3 New material shall meet the following requirements.
    - a Manufactured within one year of the installation date.
    - b Undamaged
    - c Not previously installed
    - d Delivered to jobsite in original packaging
    - e No corrosion or other degradation of material
    - f In factory condition
    - g Unmodified
  - 4 If used material or equipment has been installed on this project the Contractor shall replace said materials and/or equipment with new products at no additional cost to the Owner.
  - 5 Equipment and accessories shall be in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
  - 6 Items of a given type shall be the products of the same manufacturer.
  - 7 Deliver, store and protect products under provisions of Section 016200.
  - 8 Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
  - 9 Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
  - 10 Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.
- C Contractor shall warranty all materials, equipment, and workmanship for a minimum of one (1) year.
  - 1 Warranty shall provide repair/replacement of all defective or improperly installed materials at no additional cost to the Owner (including all costs to repair or replace the item(s)).

- 2 Contractor shall provide a competent service technician and new materials to repair/replace defective items no later than 24 hours after notification.

## 1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
  - 1 Table of contents
  - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
  - 3 Part numbers
  - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
  - 5 Maintenance instructions and intervals
  - 6 A complete set of drawings for any special items
  - 7 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
  - 8 Wiring diagrams
  - 9 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

## 1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
  - 1 Manufacturer (including contact information)
  - 2 Model number
  - 3 Programming manual (where applicable)
  - 4 Wiring diagrams
  - 5 Trouble-shooting guidelines (where applicable)
  - 6 Voltage ratings
  - 7 Current ratings
  - 8 Calibrated range (where applicable)
  - 9 List of capabilities
  - 10 Environmental ratings
  - 11 NEMA enclosure type
  - 12 Maintenance requirements
  - 13 Installation instructions
  - 14 Repair instructions (where applicable)
- C Provide manuals in one of the following formats

- 1 Three hardcopies
- 2 PDF

## **PART 2 – PRODUCTS**

### **2.1 GENERAL**

- A. All material shall be UL listed for its application.
- B. Cables shall be rated for its intended use, i.e. plenum, riser, wet location, etc.
- C. Cables, conductors, and all other components shall meet the requirements of standards listed in Section 1.3.

### **2.2 DATA AND VOIP HORIZONTAL CABLING**

- A. Contractor shall provide, install, and test a Cat-6A cable link from each Data/VOIP Outlet directly to the IDF utilizing the hardware listed below (or approved equivalent) in full compliance with all applicable standards, local and national codes, manufacturers' recommendations, and otherwise noted within these specifications.
- B. Specifications:
  1. Four twisted, unshielded, 23 AWG, solid copper pairs (23 AWG UTP)
  2. Suppress cross-talk
  3. Maintain 10GB/S performance
  4. Meet or exceed Cat-6A requirements of TIA-568-C.2 and IEEE 802.3an.
  5. SRL, Attenuation and NEXT results shall use Sweep Frequency test per TIA-568-C.
  6. Have UL verification to Cat-6A specifications.
  7. Compatible with IEEE 802.3at POE+
  8. Color for cables shall be blue.
  9. Berk-Tek LANmark-2000 or approved equal
- C. Cables shall be rated for its intended use, i.e. plenum, riser, wet location, etc.
- D. Cables, conductors, and all other components shall meet the requirements of standards listed in Section 1.3.
- E. Provide all termination accessories, dressing accessories, enclosures, and testing for a complete fiber optic distribution system. Refer to Specification Section 271100.
- F. Identification
  1. Interior: Panduit S100X225YAJ self-laminating, polyester label
  2. Exterior: Panduit MT350W17-Q stainless steel tag with rounded edges & corners
- G. Contractor shall determine cable "link" quantities as shown on the Construction Documents.

### **2.4 OUTLET HARDWARE**

- A Data and VOIP Ports:
  - 1 Category 6a, RJ45 port: Panduit CJ688TGBUY
  - 2 Terminate 26AWG to 22 AWG, stranded or solid, Cat-6 cables without punch-down tool

- 3 Suppress cross-talk
  - 4 Maintain 1GB/S performance in 48 port, 1RU patch panels
  - 5 T568B wiring scheme
  - 6 Meet or exceed Cat-6 requirements of TIA-568-C.2.
  - 7 Compatible with IEEE 802.3at POE+
  - 8 Snap in, snap out modular design
  - 9 Conductor retention and strain relief
  - 10 Gold plated contacts
- B Wallplates:
- 1 Commercial , educational, industrial, and institutional
    - a Material: Satin finish stainless steel
    - b For data or telephone – one module space: Black Box WP370 or equivalent
    - c For data and telephone – two module spaces: Black Box WP371, Panduit CFPL2SY, or equivalent
    - d For data and telephone – two module spaces: Black Box WP373, Panduit CFPL4SY, or equivalent
  - 2 Residential:
    - a Material: Nylon
    - b Color: Wallplate color shall closely match wall color.
    - c For data or telephone – one module space: Panduit NK1FNWH or equivalent
    - d For data and telephone – two module spaces: Panduit NK2FNWH or equivalent
    - e Wallplate Specifications: The wallplate housing shall be a one-piece, single-gang flush mount style that fits standard NEMA openings, on four-square boxes with reducer. It should provide 1-port field-configurable with a variety of simplex snap-in ports/connectors. It must be made of high-impact, self-extinguishing plastic rated UL 94V-0, and be UL Listed, CSA certified, and compliant with FCC Part 68 and TIA-568-C specifications. Wallplate screws must match wallplate color.
  - 3 Provide an install a blank module for each unused opening in the wallplates, Panduit CMBIG-X or equivalent.
  - 4 Labels: Panduit C125X030YPT self-adhesive, polyester label
- C Back box: 4 inch square box with one gang plaster

## 2.5 MISCELLANEOUS MATERIALS

- A Conduits: Refer to Section 260500.
- B Supports: Refer to Section 260529.
- C J-Hooks shall be steel with closure and two bolt holes. Finished part shall be hot dipped galvanized.

## 2.6 IDENTIFICATION

- A Interior: Panduit #S100X225YAJ self-laminating, polyester label
- B Exterior: Panduit #MT350W17-Q stainless steel tag with rounded edges & corners

### PART 3 – EXECUTION

#### 3.1 INSTALLATION

##### A Cables

- 1 Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
- 2 Contractor shall use Velcro strip to bundle cables together. Tie Wraps will not be allowed for supporting, bundling, and/or dressing of any cables.
- 3 Contractor shall provide a three foot service loop for all cables. The service loop will be coiled and secured using Velcro in the accessible ceiling at the conduit stub to the work area outlet box.
- 4 A 1/8" diameter, nylon pull cord shall be co-installed with all cable installed in any conduit.
- 5 Cable raceways shall not be filled greater than the TIA-569-C maximum fill for the particular raceway type or 40%.
- 6 Cables shall be installed in continuous lengths from origin to destination. Splices are not permitted.
- 7 Do not exceed the manufacturer's minimum bend radius and maximum pulling tension for cables.
- 8 Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
- 9 Cables shall be dressed and terminated in accordance with the recommendations made in the TIA-568-C standards, manufacturer's recommendations, and best industry practices.
- 10 The cable jacket shall be maintained to within 1/2 inch of the termination point.
- 11 Vertical runs of cable shall be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable every 3 feet.
- 12 Large bundles of cables and/or heavy cables shall be attached using metal clamps and/or metal banding to support the cables.
- 13 All cables shall be neatly bundled and dressed continuously from the entrance point of the data room or cabinet to their respective panels. Each panel shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame. Cables in all other rooms shall be concealed.
- 14 Inside Buildings: Cable and conductors shall be routed in conduit, or surface mounted raceway, run overhead and parallel to the structure.
  - a Conduit shall be rigid steel, IMC, or EMT as described elsewhere in these specifications.
  - b Plastic conduit shall not be used above grade.
  - c Cable may be used behind accessible T-bar ceilings without conduit. Mount cable at the roof joist (or bottom of floor above) on 1" wide 'J-hooks' or 'bridle-rings' at every 5'-0" or less. Support each cable within 1'-0" of its termination point. Run cable parallel and perpendicular to the building structure and provide mechanical support for vertical runs by using Unistrut channel securely fastened in place.

- d Cable and conductors shall not be attached to the support wire of the T-bar ceiling or laid across the ceiling boards.
  - 15 Between buildings: Cable and conductors shall be routed in conduit run underground.
    - a Conduit shall be rigid steel, IMC, or plastic as described elsewhere in these specifications.
    - b The use of EMT is not acceptable.
  - 16 On The Roof: Conduit shown on the drawings as being on the roof of the building or covered walkway shall be installed on 4" by 4" pressure treated wood blocking (sleepers) attached to the structure every 8'-0" or less.
    - a Conduit shall be rigid steel or IMC as described elsewhere in these specifications.
    - b The use of EMT or plastic conduit is not acceptable.
  - 17 Make all underground runs continuous without splices or taps. Use underground boxes for *pulling purposes only*.
  - 18 Only use pulling grip approved by the cable manufacturer.
  - 19 Clean conduit with mandrel prior to pulling.
  - 20 Make all connections and splices in a clean environment.
  - 21 Follow cable manufacturer's and device manufacturer's instructions for connections to devices.
  - 22 Maximum combined cable length (patch cords and installed cable) from switch to end user equipment shall be 328 feet.
  - 23 Stranded conductors shall be "tinned" with solder before terminations are made.
  - 24 Make all terminations in cabinets and at terminal backboards on terminal blocks and/or Patch Panels as specified above.
- B Outlets Installation
- 1 No more than 12" of cable shall be stored in an outlet box, modular furniture raceway, or insulated walls.
  - 2 Data jacks, unless otherwise noted in drawings, shall be located in the top position(s) of each faceplate. Data jacks in horizontally oriented faceplates shall occupy the left-most position(s).
  - 3 Voice jacks, unless otherwise noted in drawings, shall occupy the next position(s) below the data on the faceplate. Voice jacks in horizontally oriented faceplates shall occupy the position right of the data jack.
  - 4 All faceplates installed shall be level.

### 3.2 LABELING

- A. The contractor shall follow the Owner's labeling scheme.
- B. Label each cable at its beginning and end points no further than 6" behind termination on a section of cable that is easily accessible. Cable labels shall include the ids of both terminations and cable id.
- C. All labels shall be machine printed or embossed. Handwritten labels are not acceptable.
- D. All labeling information shall be recorded on the as-built drawings and all test documents.
- E. Label all cable beginning and terminating points.
- F. Labels for site cables and cables in multiple buildings shall feature the following.

1. Identify origin (MDF or IDF and building), termination (IDF or port identifier), and next pull box.
2. Cables in pull boxes shall have a label at entry into pull box and exit from pull box. Labels shall be stainless steel tags with embossed characters.

### 3.3 TESTING

#### A. General

1. All cables (including each fiber) and termination hardware shall be tested.
2. Testing must comply with TIA standards for testing (refer to Section 1.3), plans, specifications, and manufacturer recommendations.
3. Contractor shall notify the Owner or Owner's Representative 72 hours before commencement of testing.
4. Upon receipt of the test documentation, the Customer reserves the right to have the contractor perform a 20% witnessed "spot testing" of the cabling system to validate test results provided in the test document, at no additional cost. If a significant amount of cables are marginal and/or fail during the "spot test" Contractor will retest the entire cable plant at no additional cost.

#### B. Equipment

1. All equipment must be properly calibrated and traceable to NIST.
2. Equipment shall have been recalibrated within the previous 6 month prior to testing.

#### C. Data Copper Cables:

1. Each pair in each cable shall be tested in accordance with TIA-568-C series and TIA-TSB-67 for:
  - a. Opens
  - b. Shorts
  - c. Grounds
  - d. Continuity
  - e. Polarity
  - f. DC resistance
  - g. DC resistance unbalance
  - h. Impulse noise
  - i. Signal attenuation
  - j. NEXT
  - k. PS-NEXT
  - l. ELFEXT
  - m. PS-ELFEXT
  - n. Return loss
  - o. Propagation delay
  - p. Delay skew
2. Each installed cable link shall be tested for installed length using a TDR type device. Cable lengths shall be recorded, referencing the cable identification number and circuit or pair number.
3. Conductors and connectors shall be tested as a complete system.



4. Testing of all horizontal cable, outlet ports, patch cords, and riser cable pairs shall include end-to-end tests using a Wavetech Lanetek 100 or Fluke Network's DXT CableAnalyzer Series scanner.
5. Test cables to check that they meet all IEEE and TIA Cat-6 and 1GB/S performance specifications (refer to Section 1.3).
6. All installed cables must meet or exceed the defined standards for performance. The Contractor shall take all steps necessary to repair or replace any optic not meeting the standard.
7. Test results shall be automatically evaluated by the equipment, using the most up-to-date criteria from the TIA standards.
8. The test equipment shall provide a printed document for each test that is also available in a downloadable file using an application from the test equipment manufacturer. The printed test results shall include a print out of all tests performed, and the individual test results for each cable.

### **3.4 SYSTEM CLOSEOUT AND AS-BUILT DOCUMENTATION**

- A Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
- B Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.
- C The Owner's Representative/Engineer will request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
- D Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, a bi-annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
- E Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.

- F When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.
- G The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
- H Contractor will provide one laminated 11"x17" drawing at each IDF and MDF that includes the building layout for that IDF or MDF, along with the outlet locations and all of the approved labeling.

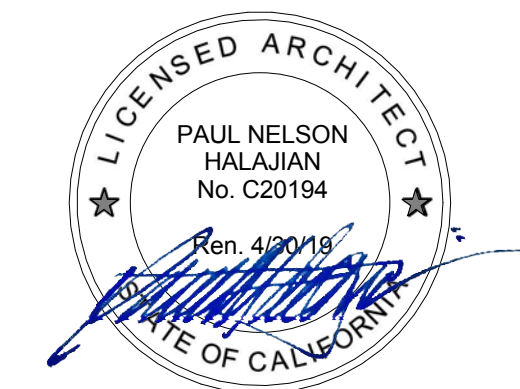
**END OF SECTION**

# New Project Description for: UC Merced Kolligian Library 3W Renovation 5200 Lake Road, Merced, CA 95343

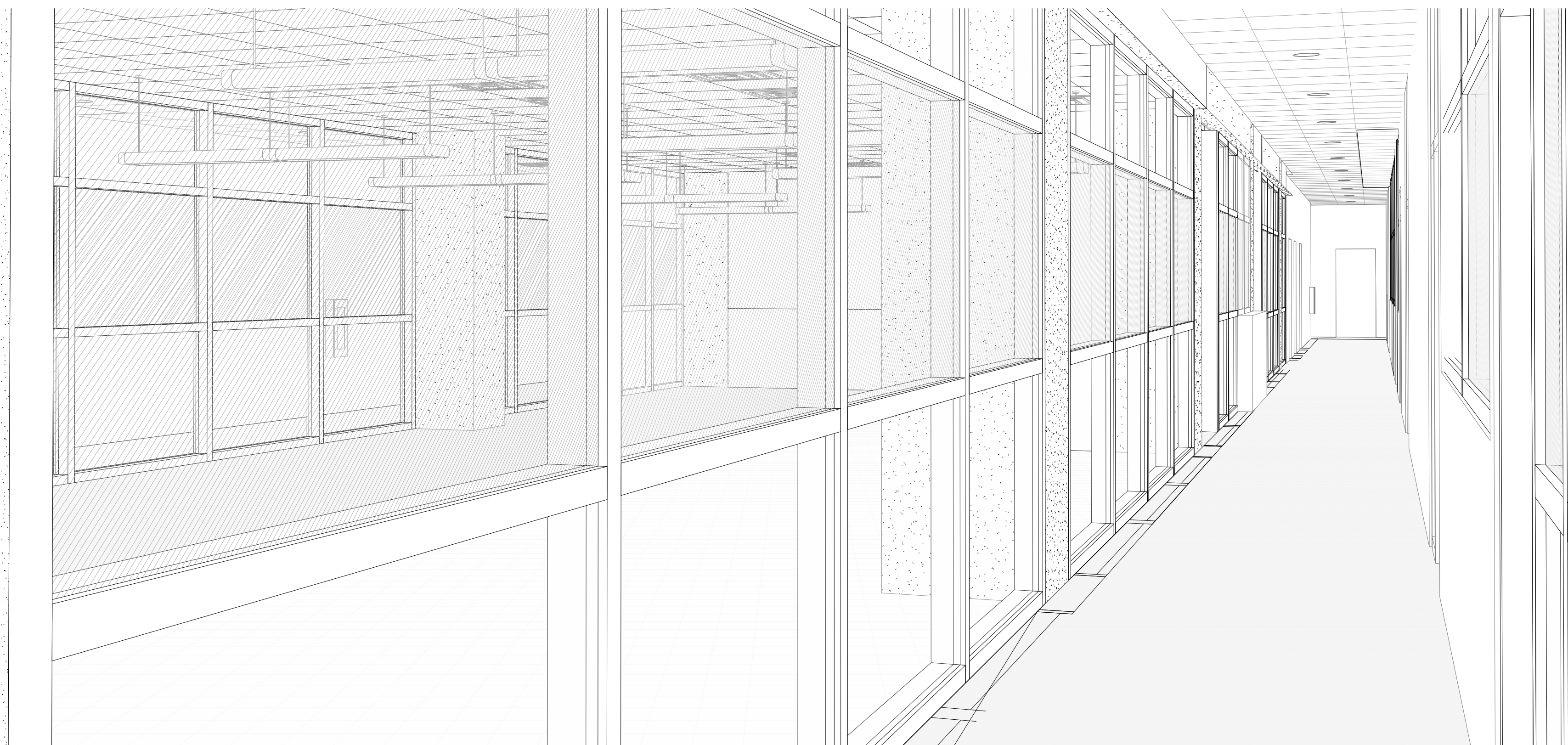
PH

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## Project Information

### SITE INFORMATION

Address: 5200 Lake Road  
Merced, CA 95343  
Existing Zoning: A-2 Exclusive Agricultural

### BUILDING INFORMATION

Construction Type: II-A  
Project Area: 16,359 s.f.

### DESCRIPTION OF WORK

Scope of work includes minor demolition of walls, doors and finishes. New work includes new suspended acoustic ceilings, walls, storefront, doors, and finishes. Electrical and mechanical work are also included in this scope - refer to forthcoming Electrical drawings for Electrical scope. No structural or site work is included. Fire sprinklers are a deferred approval.

### GOVERNING CODES

2016 California Administrative Code (Part 1 of Title 24, CCR)  
2016 California Building Code (Part 2 of Title 24, CCR)  
2016 California Electrical Code (Part 3 of Title 24, CCR)  
2016 California Mechanical Code (Part 4 of Title 24, CCR)  
2016 California Plumbing Code (Part 5 of Title 24, CCR)  
2016 California Energy Code (Part 6 of Title 24, CCR)  
2016 California Fire Code (Part 9 of Title 24, CCR)  
2016 California Green Building Standards Code (CALGreen)  
2016 California Referenced Standards Code (Part 12 OF Title 24, CCR)  
California Code Of Regulations, Title 19, Public Safety  
2013 NFPA 13 - National Fire Sprinkler Code  
2013 NFPA 72 - National Fire Alarm Code  
ASHRAE Indoor Air Quality Standard 62-1989

### DEFERRED APPROVALS

Submit complete Fire Sprinkler plans (per NFPA 13) to the University of California, Merced Fire Marshal for approval prior to any installation or modification.  
Submit complete Fire Alarm plans (per NFPA 72) to the University of California, Merced Fire Marshal for approval prior to any installation or modification.

## Project Directory

### OWNER:

UC Merced  
5200 Lake Road  
Merced, CA 95343  
(209) 201-8174

Contact: Fran Telechea

### ARCHITECT:

Paul Halajian Architects  
389 Clovis Ave., Suite 100  
Clovis, CA 93612  
559-297-7900

Contact: Stephanie Reed

### MECHANICAL ENGINEER:

JNL Mechanical Design  
-

(559) 233-4138

Contact: Joelon Chinn

PROJECT:  
**UC Merced  
Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343

SHEET: Cover

## DRAWING SET INFORMATION:

07.10.2018 Bid Set

## REVISIONS:



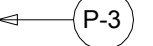
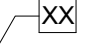


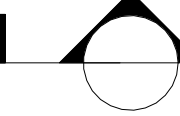

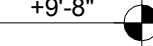
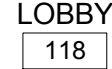
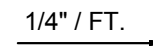

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2018-18

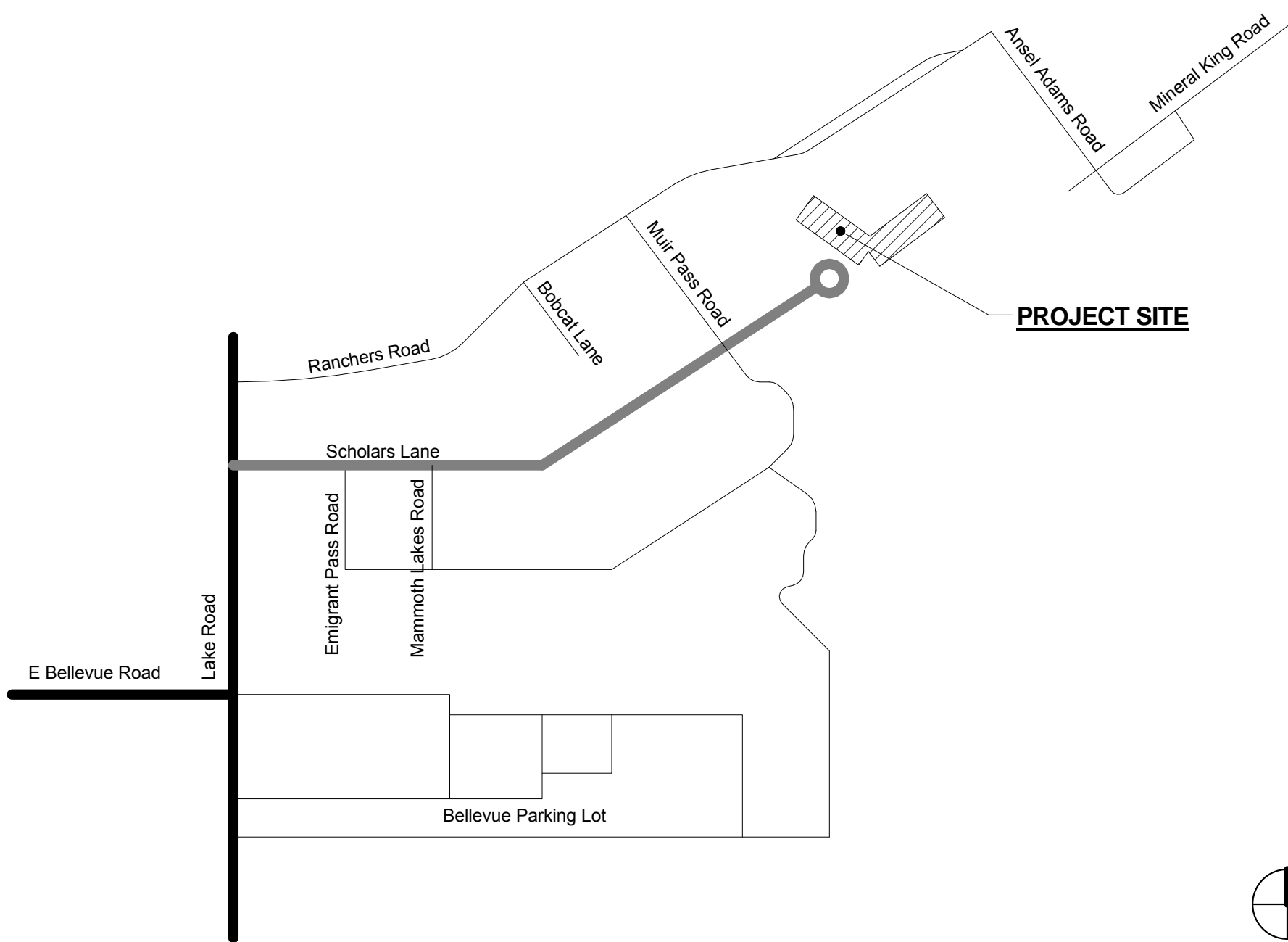
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G000

## Symbols

	DOOR SYMBOL
	WINDOW SYMBOL
	WALL FINISH TAG
	KEYNOTE SYMBOL
	CEILING HEIGHT MARKER - SEE SHEET A601
	ELEVATION
	SECTION CUT
	DETAIL CUT
	ELEVATION POINT
	ROOM IDENTIFICATION SYMBOL
	SLOPE

## Vicinity Map



## Inspections

- All materials delivered to the project shall be inspected prior to use on the construction site.
- Inspection of rough framing, electrical, mechanical, drywall required prior to covering any work.
- All inspection requests shall be scheduled on the inspection calendar.
- Inspections shall be scheduled 24 hours prior to the date of inspection.
- Special inspections shall be scheduled 48 hours prior to the date of the inspection.
- Torque testing required for any anchors into the concrete floors or ceilings. Inspector shall witness torque test.

## Deferred Approvals

Fire sprinklers are a deferred approval item.  
Fire alarm systems are a deferred approval item.

## Architect's Statement

The drawings &/or specifications &/or calculations for the disciplines listed have been prepared by other design professionals or consultants who are licensed &/or authorized to prepare such drawings in this state. These documents have been examined by me for design intent & have been found to meet the appropriate requirements of Title 24, California Code of Regulations & the project specifications prepared by me.

The following disciplines' work has been coordinated with my plans & specifications & is acceptable for incorporation into the construction of this project for which I am the individual designated to be in general responsible charge, (or for which I have been delegated responsibility for this portion of work): Civil, Landscape, Structural, Plumbing, Mechanical, Electrical

ARCHITECT'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

Paul Halajian  
Architect/Principal  
Paul Halajian Architects

License #: C-020194  
Expiration: April 30th, 2019

## Abbreviations

&	And	HVAC	Heating, Ventilating, Air Conditioning
L	Angle	Hwy.	High Way
@	At	ID	Inside Diameter/Dimension
C	Centerline	Info.	Information
O	Diameter/Round	Insul.	Insulation
L	Perpendicular	Int.	Interior
#	Pound/Number	Jan.	Janitor
(E)	Existing	Jt.	Joint
(N)	New	Klt.	Kitchen
Abv.	Above	KO	Knock Out
A/C	Air Conditioning	KOP	Knock Out Panel
ACP	Asphalt Concrete Paving	Lam.	Laminate
Acst.	Acoustic(a)	Lav.	Lavatory
ACT	Acoustic Ceiling Tile	Lb(s)	Pound (Pounds)
AB	Anchor Bolt	L	Lag Bolt
ADA	Americans with Disabilities Act	LF	Lineal Foot
ADAAG	ADA Accessible Guidelines	LH	Left Hand
Adnl.	Additional	Lb.	Library
Adj.	Adjustable	Lt.	Light
Adjc.	Adjacent	Lt. Wt.	Light Weight
AFF	Above Finish Floor	Mach.	Machine
AFG	Above Finish Grade	Maint.	Maintenance
Agg.	Aggregate	Max.	Maximum
Alt.	Alternate	MB	Machine Bolt
Alum.	Aluminum	MBM	Metal Building Manufacturer
Anod.	Anodized	Mech.	Mechanical
APC	Acoustic Panel Ceiling	Med.	Medium
Approx	Approximate	Memb.	Membrane
Arch.	Architect(ural)	Met.	Metal
A/V	Audio/Visual	Mfr.	Manufacturer
Bd.	Board	Mh.	Manhole
Bel	Below	Mkr.	Marker
Bldg.	Building	Min.	Minimum
Blk.	Block	Misc.	Miscellaneous
Blkg.	Blocking	MO	Masonry Opening
Br.	Beam	Mtd.	Mounted
Bot.	Bottom	Mtg.	Meeting
Brg.	Bearing	Mull.	Mullion
Btwn.	Between	N	North
BUR	Built-Up Roofing)	NIC	Not in Contract
C&G	Curb and Gutter	No.	Number
Cab.	Cabinet	Nom.	Nominal
CB	Carriage Bolt	NRC	Noise Reduction Coefficient
Cem.	Cement	NTS	Not To Scale
Cer.	Ceramic	OC	On Center
CF	Cubic Foot	OD	Outside Diameter/ Dimension
CFM	Cubic Foot per Minute	Off	Office
CI	Cast Iron	OFCl	Owner Furnished, Contr. Installed
CJ	Construction Joint	OFOW	Owner Furnished, Owner Installed
CL	Center Line	OFRD	Overflow Roof Drain
CLF	Chain Link Fence	OH	Opposite Hand
Clg.	Ceiling	OHCD	Overhead Colling Door
Clo.	Closet	OHMS	Oval Head Mach. Screw
Clr.	Clear	OHWS	Oval Head Wood Screw
Clrm.	Classroom	Opng.	Opening
CMU	Concrete Masonry Unit	Opp.	Opposite
Conr.	Concrete	o	Over
Conn.	Connection	Og.	Original
Constr.	Construction	Overhd.	Overhead
Cont.	Continuous	OWJ	Open Web Joist
Contr.	Contractor	PBN	Plywood Boundary Nailing
Cpt.	Carpet	PEN	Plywood Edge Nailing
CRC	Cold Rolled Channel	PES	Plywood Edge Screws
Cr.	Center	PIV	Post Indicator Valve
Csk.	Countersunk	P. Lam.	Plastic Laminate
CY	Cubic Yard	PL	Property Line
Db.	Double	Pl.	Plate
Dem.	Demolish/Demolition	Plas.	Plaster
DF	Drinking Fountain/ Douglas Fir	Plywd.	Plywood
Det.	Detail	Pr.	Pair
Diag.	Diagonal	PSF	Pounds Per Square Foot
Dia.	Diameter	PSI	Pounds Per Square Inch
Dim.	Dimension	Pt.	Point
Disp.	Dispenser	PTD	Paper Towel Disp.
Dn.	Down	PTDF	Pressure Treated Douglas Fir
Dp.	Deep	Ptn.	Partition
DS	Down Spout	PVC	Polyvinyl Chloride
Dwg(s)	Drawing	RA	Radius/Thermal Resistance
E	East	RD	Roof Drain
Ea.	Each	Ref.	Reflected
Ea.	Each	Refr.	Refrigerator
Ea.	Each	Reinf.	Reinforced
EF	Exhaust Fan	Rem.	Remove
Engr.	Engineer	Reqd.	Required
EJ	Expansion Joint	Resil.	Resilient
EL	Elevation	RH	Right Hand
Elec.	Electric(al)	RHW	Round Head Wood Screw
Elev.	Elevator	Rm.	Room
Emb.	Embedment	RO	Rough Opening
Emer.	Emergency	ROW	Right-Of-Way
EN	Edge Nailing	Rwd	Redwood
Encl.	Enclosure	RWL	Rain Water Leader
Eq.	Equal	S	South
Equip.	Equipment	SA	Supply Air
Evap.	Evaporative	SC	Solid Core
EW	Each Way	Sch	Schedule
Exh.	Exhaust	SD	Storm Drain
Exst.	Existing	Sect.	Section
Exp.	Expansion	SF	Square Feet/Foot
Ext.	Exterior	Shr.	Shower
FA	Fire Alarm	Shtg.	Sheathing
FB	Flat Bar	Sim.	Similar
FBO	Furnished By Owner/Others	SM	Sheet Metal
FD	Floor Drain	SOG	Slab-On-Grade
FDC	Fire Department Connection	Spec(s)	Specification(S)
Fdn.	Foundation	Spkr.	Speaker
FE	Fire Extinguisher	Sq.	Square
FEC	Fire Extinguisher Cabinet	SS	Stainless Steel
FF	Factory Finish/Finish Floor	Sta.	Station
FG	Finish Grade	STC	Sound Transmission Class
FH	Fire Hydrant	Std.	Standard
FHMS	Flat Head Machine Screw	Stl.	Steel
FHWS	Flat Head Wood Screw	Stor.	Storage
Fin.	Finish	Struct.	Structural
Fixt.	Fixture	Susp.	Suspended
Fir.	Floor(ing)	SW	Side Walk
Flash.	Flashing	Sym.	Symmetrical
Fluor.	Fluorescent	TOC	Top of Concrete
FO	Face Of	Temp.	Temporary
FOC	Face of Concrete	Tmpd.	Tempored
FOF	Face of Finish	T&G	Tongue And Groove
FOM	Face of Masonry	Thd.	Threaded
FOS	Face of Stud	Thk.	Thick
FRP	Fiberglass Reinforced Paneling	TI	Tenant Improvement
FS	Fire Sprinkler(s)	Tk. Bd.	Tack Board
FSH	Fire Sprinkler Head	TOS	Top of Steel
Fl.	Foot/Feet	TOP	Top of Pavement
Furr.	Furring	TS	Tube Steel
Fut.	Future	Tel.	Telephone
Ga.	Gauge	TB	Telephone Terminal Back Board
Galv.	Galvanized	TV	Television
GB	Grab Bar	Typ.	Typical
GC	General Contractor	UG	Underground
Gen.	General	UNO	Unless Noted Otherwise
GSM	Galvanized Sheet Metal	VCT	Vinyl Composition Tile
Gr.	Grade	Vert.	Vertical
Gyp.	Gypsum	VTR	Vent to Roof
HB	Hose Bibb	VWC	Vinyl Wall Covering
Hbd.	Hardboard	W	Width
HC	Hollow Core	w/	With
Hd.	Head	WC	Water Closet
HD	Heavy Duty	Wd.	Wood
Hdr.	Header	Wdw.	Window
Hdw.	Hardware	WF	Wide Flange
Hdwd.	Hardwood	WH	Water Heater
HM	Hollow Metal	w/o	Without
HMD	Hollow Metal Door	WP	Waterproof
HMF	Hollow Metal Frame	WS	Wood Screw
Horiz.	Horizontal	Wt.	Weight
Hr.	Hour	WWF	Welded Wire Fabric
Ht.	Height	Xfmr.	Transformer

Abbreviations, when used in these documents, shall conform to the following list unless otherwise noted. Drawings of other disciplines (such as civil, structural, plumbing, mechanical, and electrical) may contain specific abbreviations, references, and legends with interpretation intended only for those disciplines.

## Drawing Organization

The organization of these drawings is not intended to control the division of work among subcontractors. It shall be the General Contractor's responsibility to divide the work.

The drawings cover most of the construction conditions. If another condition is discovered during construction, the Contractor shall submit a sketch of the work to be done to the Architect for approval.

Copies of these drawings are supplied to the Owner, and the Contractor for use in the construction of this project only. The drawings are not to be reproduced, changed, or copied in any form or manner whatsoever, nor are they to be assigned to a third party without first obtaining the written permission of Paul Halajian Architects. All drawings prepared by Paul Halajian Architects are and shall remain the property of Paul Halajian Architects.

## Title 24 Compliance Notes

- Insulation shall be certified by the manufacturer to comply with the California quality standards for insulation material.
- Insulation shall have a flame spread rating not to exceed 25 & a smoke density not to exceed 450.
- Doors & windows between conditioned & unconditioned spaces shall be weatherstripped.
- Manufactured doors & windows shall have air-conditioned rates certified by the manufacturer as not exceeding the following:
  - Windows: 0.37 CFM/sq. ft. of operable sash crack
  - Doors: 0.37 CFM/sq. ft. of Single door area, 1.0 CFM/sq. ft. of Double door area
- Site-constructed doors & windows, exterior joints & openings in the building envelope that are observable sources of air leakage shall be caulked, gasketed, weatherstripped or otherwise sealed.

## General Notes

- Unless otherwise indicated, all work shall be in strict accordance with all codes adopted & amended by the governing authority.
- All hardware to meet function specified & Title 24 accessibility requirements; all door handles shall be lever type, except where panic hardware req'd.; see door schedule & floor plans.
- Unless otherwise indicated, all dimensions are indicated to the face of stud walls, plywood shgt., concrete, or concrete masonry.
- Wall & ceiling finish: class c: flame spread 76-200; smoke developed 0-450 for rooms and enclosed spaces.
- Contractor shall visit the job site & familiarize him/herself w/ all conditions which may have an effect on his/her work. Any discrepancies between the drawings & the actual conditions shall be immediately brought to the attention of the Architect.
- This building shall conform to all state requirements for accessibility. All doors shall have min. clear openings of 32".
- Verify that max. cross slope of all landings, ramps, &/or walks to be 1/4" per foot.
- Provide approved 6"x6" accessibility symbol at primary entrance to building; see detail 16/A901.
- Glass subject to human impact shall be safety glazing & meet state and federal requirements; see door schedule sheet A702
- Drawings are not to be scaled for any reason. Dimensions shall govern.
- Take field measurements as required. Discrepancies between drawings & field dimensions shall be reported to Architect prior to fabrication.
- Provide the following joint sealants at interior joints in vertical surfaces and horizontal non-traffic surfaces as indicated below: a) Perimeter joints between interior wall surfaces and frames of interior doors and windows b) Perimeter joints of plumbing fixtures c) Perimeter of sound walls & penetrations through sound walls. d) Perimeter of penetrations through all surfaces where required to close gaps between surfaces. e) Other joints indicated.
- Provide attachment & connection devices & method necessary for securing work.
- Visual effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer joint layouts to the Architect for final decision.
- Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
- For typical mounting heights of switches and outlets; see detail 20/A901.
- Flame spread & smoke density of insul. to be installed shall not exceed the requirements described in Title 24 Compliance Notes.
- See specifications for material grades.
- It shall be the responsibility of the Contractor to notify the Architect of any conflicts herein prior to start of work on that item.
- Threshold at entry doors & change of flooring material shall have 1/2" max. Offset from lowest floor finish mat. to highest projection of threshold. Offsets greater than 1/4" require a max. beveled slope of 1 unit vertical to 2 units horizontal, except that level changes not exceeding 1/4" may be vertical. Offset changes in elevation less than 12" along exits shall be by means of an approved ramp. (CBC 1006.1.6)
- Where no specific detail is shown, the construction shall be identical or similar to that indicated for similar construction on the project.
- Where no specific standards are applied to a material or method of construction to be used in the work, all such materials & methods are to maintain standards of the industry.
- Materials, equip., etc. not indicated on drawings or specified herein but essential to the successful & efficient completion of the installation shall be furnished & installed.
- Examine substrates & other conditions under finish materials for compliance w/ requirements for application of finish material. Do not begin application until unsatisfactory conditions have been corrected.
- Building designed to support mechanical equip., ceilings, insulation & light fixtures.
- Manufacturer's instruction: comply w/ manufacturer's written installation instructions & recommendations to the extent that those instructions & recommendations are more explicit or stringent than requirements contained in contract documents.
- Obtain each classification of work from a single source as required in specifications.
- These plans & related documents must be available at the job site during any inspection activity.
- All decorations used shall be non-combustible or have a flame spread rating that meets or exceeds California Building Code requirements.
- Provide type 2A fire extinguishers per IFC and NFPA 10; see floor plan for locations.
- Provide anchorage backing per detail 3/A901 for all accessories and fixtures, including, but not limited to TV's, artwork, and wall-mounted equipment.
- Provide all-weather access to all areas of the development during all phases of the construction.
- Primary entrances shall be operable from inside without the use of a key or any special knowledge or effort.
- The approval of these plans & specifications does not permit the violation of any section of the building code, municipal ordinances, or state laws.
- Match existing finishes to the maximum extent feasible. If products specified in these drawings or specifications do not match existing adjacent products, submit an alternate to Architect for approval.

PROJECT:

UC Merced

Kolligian Library 3W Renovation

5200 Lake Road, Merced, CA 95343

SHEET: General Notes

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:


PROJECT NUMBER:

2018-18

SHEET NUMBER:

G001



PAUL HALAJIAN  
ARCHITECTS

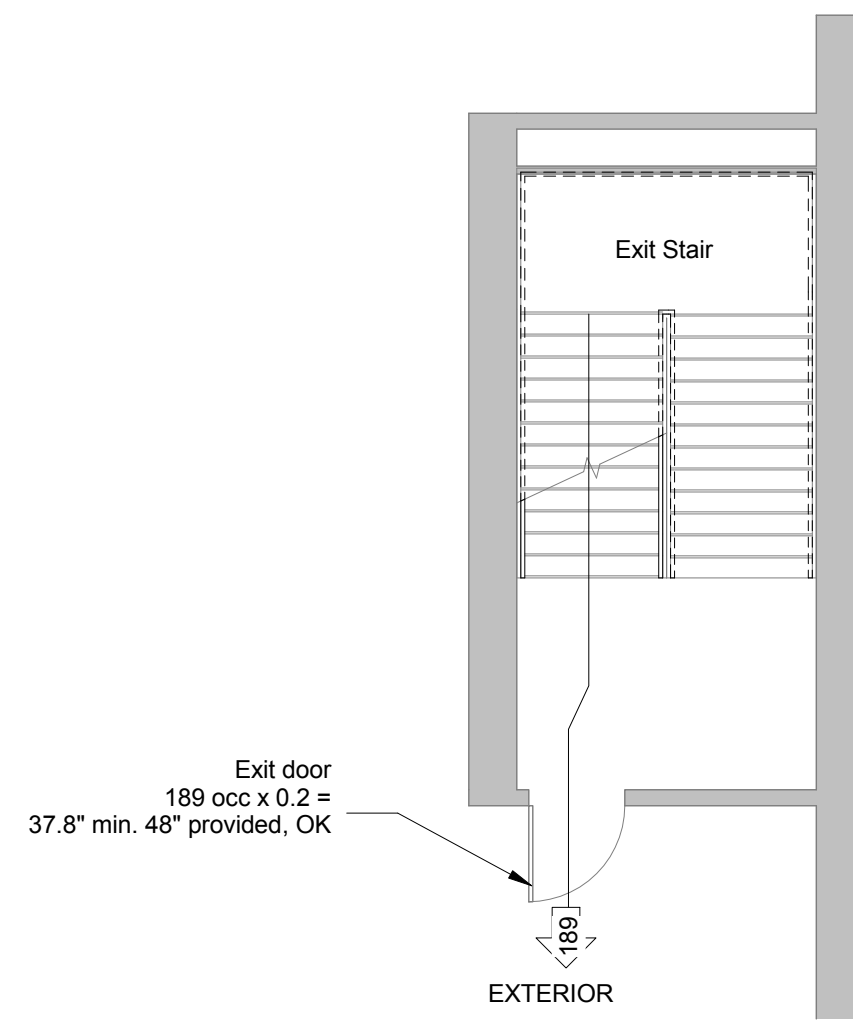
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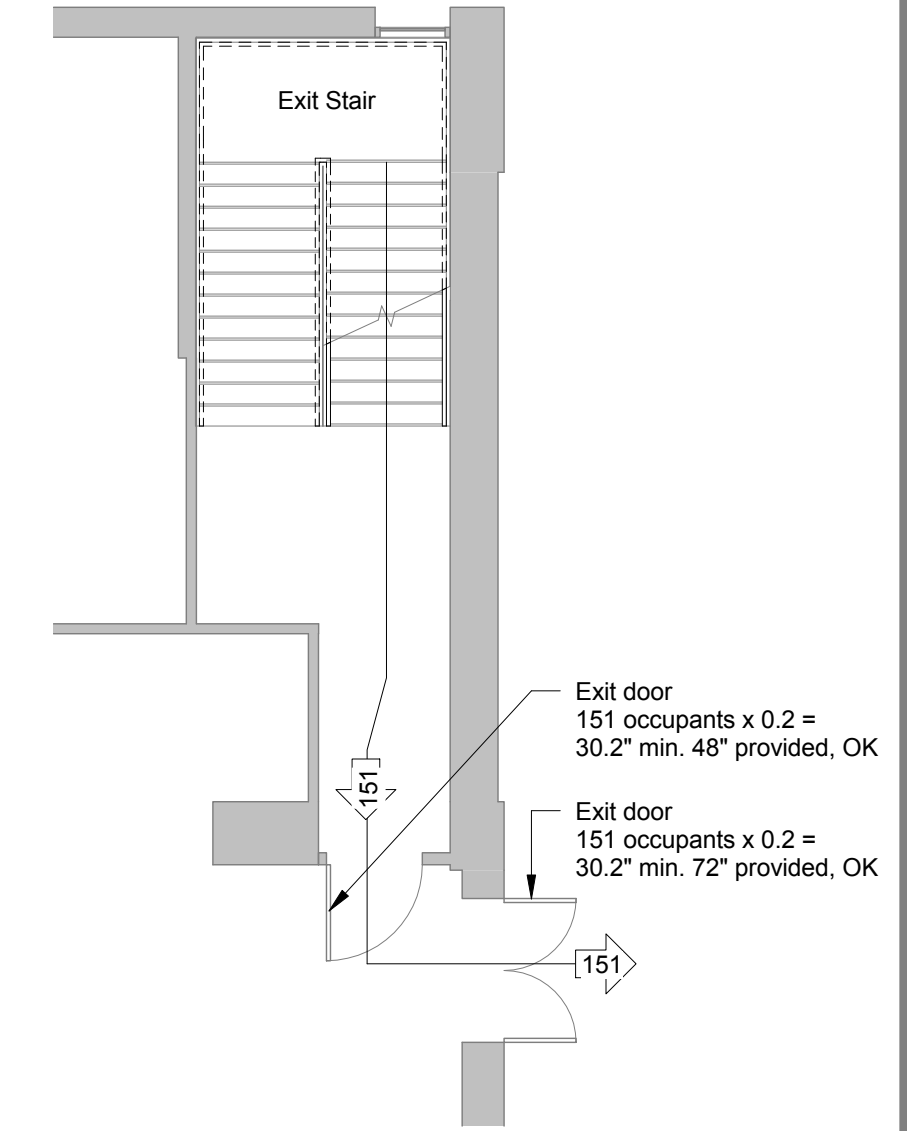
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Code Plan General Notes

- All doors shown but not noted are to be considered not a part of the egress path.
- The following occupant load factors were used per CBC Table 1004.1.2:  
 15 net OLF was used for unconcentrated tables and chairs for assembly spaces  
 50 net OLF was used for library reading rooms  
 100 gross OLF was used for office space  
 300 gross OLF was used for storage/maintenance spaces



② First Floor Code Plan (West Stair)  
1/8" = 1'-0"



③ First Floor Code Plan (East Stair)  
1/8" = 1'-0"



① Third Floor Code Plan (Proposed)  
1/8" = 1'-0"

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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
 5200 Lake Road, Merced, CA 95343  
**SHEET: Exiting Plan**

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:

NO.	DESCRIPTION

PROJECT NUMBER:

2018-18

SHEET NUMBER:

G002

# 2016 CAL Green Building Standards Guideline

## CGBCS 5.408 - CONSTRUCTION WASTE DIVERSION

- PER CGBCS SECTION 5.408.1, CONTRACTOR SHALL RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 65% OF THE NON-HAZARDOUS CONSTRUCTION AND DEMOLITION DEBRIS IN ACCORDANCE TO 5.408.1.1, 5.408.1.2, OR 5.408.1.3.
- PER CBC SECTION 5.408.1.1, CONTRACTOR SHALL SUBMIT A WASTE MANAGEMENT PLAN THAT PROVIDES THE FOLLOWING WORK:
  - IDENTIFY THE MATERIALS TO BE DIVERTED FROM DISPOSAL BY EFFICIENT USAGE, RECYCLING, REUSE ON THE PROJECT OR SALVAGE FOR FUTURE USE OR SALE.
  - DETERMINE IF MATERIALS WILL BE SORTED ON-SITE OR MIXED.
  - IDENTIFIES DIVERSION FACILITIES WHERE MATERIAL COLLECTED WILL BE TAKEN
  - SPECIFIES THAT THE AMOUNT OF MATERIALS DIVERTED SHALL BE CALCULATED BY WEIGHT OR VOLUME, BUT NOT BY BOTH.
- PER CBC SECTION 5.408.1.2, CONTRACTOR SHALL UTILIZE A WASTE MANAGEMENT COMPANY THAT CAN PROVIDE VERIFIABLE DOCUMENTATION THAT THE PERCENTAGE OF CONSTRUCTION AND DEMOLITION MATERIAL DIVERTED FROM THE LANDFILL COMPLIES WITH THIS SECTION
- PER CGBCS SECTION 5.408.1.4, CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENFORCING AGENCY WHICH DEMONSTRATE COMPLIANCE WITH 5.408.1.1 THROUGH 408.1.3. WASTE MANAGEMENT PLAN SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL BE ACCESSIBLE DURING CONSTRUCTION FOR EXAMINATION BY THE ENFORCING AGENCY.

## CGBCS 5.410 - BUILDING MAINTENANCE AND OPERATION:

- PER CGBCS SECTION 5.410.1, OWNER SHALL PROVIDE A READILY ACCESSIBLE AREA THAT SERVES THE ENTIRE BUILDING AND IS IDENTIFIED FOR THE DEPOSITING, STORAGE AND COLLECTION OF NON-HAZARDOUS MATERIALS FOR RECYCLING, INCLUDING PAPER, CORRUGATED CARDBOARD, GLASS, PLASTICS AND METALS.
- PER CGBCS SECTION 5.410.4, TESTING AND ADJUSTING SHALL BE PROVIDED AS PART OF THE SCOPE OF THIS WORK BY THE CONTRACTOR OR CONTRACTORS AGENT. COPY OF REPORT SHALL BE PROVIDED TO OWNER OR ARCHITECT.
- PER CGBCS SECTION 5.410.4.2, A WRITTEN PLAN OF PROCEDURES FOR TESTING AND ADJUSTING SYSTEMS SHALL BE PROVIDED TO OWNER AND ARCHITECT.
- PER CGBCS SECTION 5.410.4.3, IN ADDITION TO TESTING AND ADJUSTING, HVAC BALANCING SHALL ALSO BE PROVIDED AS PART OF THE SCOPE OF THIS WORK BY THE CONTRACTOR OR CONTRACTORS AGENT. COPY OF REPORT SHALL BE PROVIDED TO OWNER OR ARCHITECT.
- PER CGBCS SECTION 5.410.4.5, CONTRACTOR SHALL PROVIDE THE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND COPIES OF GUARANTEES/WARRANTIES FOR EACH SYSTEM. O&M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUIREMENTS IN CCR, TITLE 8, SECTION 5142, AND OTHER RELATED REGULATIONS.
- PER CGBCS SECTION 5.410.4.5.1, CONTRACTOR SHALL INCLUDE A COPY OF ALL INSPECTION VERIFICATIONS AND REPORTS REQUIRED BY THE ENFORCING AGENCY.

## CGBCS 5.504 - POLLUTION CONTROL:

- PER CGBCS SECTION 5.504.1.3, CONTRACTOR TO ENSURE THAT THE PERMANENT HVAC SYSTEM SHALL ONLY BE USED DURING CONSTRUCTION IF NECESSARY TO CONDITION THE BUILDING WITHIN THE REQUIRED TEMPERATURE RANGE FOR MATERIAL AND EQUIPMENT INSTALLATION. IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, USE RETURN AIR FILTERS WITH A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8, BASED ON ASHRAE 52.2 1999, OR AN AVERAGE EFFICIENCY OF 30% BASED ON ASHRAE 52.1 1992. REPLACE ALL FILTERS IMMEDIATELY PRIOR TO OCCUPANCY.
- PER CGBCS SECTION 5.504.3, CONTRACTOR SHALL ENSURE THAT AT THE TIME OF ROUGH INSTALLATION, OR DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCT THE AMOUNT OF DUST WHICH MAY COLLECT IN THE SYSTEM.
- PER CGBCS SECTION 5.504.4, CONTRACTOR THE ENSURE THAT ADHESIVES, SEALANTS, AND CAULKS USED ON THE PROJECT SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS:
  - ADHESIVES, ADHESIVE BONDING PRIMERS ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS AND CAULKS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE, OR SCAQMD RULE 1168 VOC LIMITS, AS SHOWN IN TABLES 5.504.4.1 AND 5.504.4.2. SUCH PRODUCTS ALSO SHALL COMPLY WITH RULE 1168 PROHIBITION ON THE USE OF CERTAIN TOXIC COMPOUNDS (CHLOROFORM, ETHYLENE DICHLORIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE AND TRICHLOROETHYLENE), EXCEPT FOR AEROSOL PRODUCTS AS SPECIFIED IN SUBSECTION 2, BELOW.
  - AEROSOL ADHESIVES, AND SMALLER UNIT SIZES OF ADHESIVES, AND SEALANT OR CAULKING COMPOUNDS (IN UNIT OR PRODUCT, LESS PACKAGING, WHICH DO NOT WEIGH MORE THAN ONE POUND AND DO NOT CONSIST OF MORE THAN 16 FLUID OUNCES) SHALL COMPLY WITH STATEWIDE VOC STANDARDS AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS, OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94507.

## CGBCS - POLLUTION CONTROL:

SEALANT VOC LIMIT  
LESS WATER AND LESS EXEMPT COMPOUNDS IN GRAMS PER LITER

REFERENCE: 2016 CGBCS TABLE 5.504.4.2

### SEALANTS CURRENT VOC LIMIT

ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420

### SEALANT PRIMERS

ARCHITECTURAL	250
NONPOROUS	775
POROUS	500
MODIFIED BITUMINOUS	760
MARINE DECK	760
OTHER	750

- PER CGBCS SECTION 5.504.4.3, ARCHITECTURAL PAINTS AND COATINGS SHALL COMPLY WITH VOC LIMITS IN TABLE 1 OF THE ARB ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE. AS SHOWN IN TABLE 5.504.4.1, UNLESS MORE STRINGENT LOCAL LIMITS APPLY. THE VOC CONTENT LIMIT FOR COATING THAT DO NOT MEET WITH DEFINITIONS FOR THE SPECIALTY COATINGS CATEGORIES LISTED IN TABLE 5.504.4.3 SHALL BE DETERMINED BY CLASSIFYING THE COATING AS A FLAT, NONFLAT, OR NONFLAT-HIGH GLOSS COATING, BASED ON ITS GLOSS, AS DEFINED IN SUBSECTIONS 4.21, 4.36 AND 4.37 OF THE 2007 CALIFORNIA AIR RESOURCES BOARD, SUGGESTED CONTROL MEASURE, AND THE CORRESPONDING FLAT, NONFLAT OR NONFLAT-HIGH GLOSS VOC LIMIT IN TABLE 5.504.4.3 SHALL APPLY.

- PER CGBCS SECTION 5.504.4.3.1, AEROSOL PAINTS AND COATINGS SHALL MEET THE PM10 LIMITS FOR VOC IN SECTION 94522(a)(3) AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS AND OZONE DEPLETING SUBSTANCES, IN SECTIONS 94522(c)(2) AND (d)(2) OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94520; AND IN AREAS UNDER THE JURISDICTION OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT ADDITIONALLY COMPLY WITH THE PERCENT VOC BY WEIGHT OF PRODUCT LIMITS OF REGULATION 8, RULE 49.

- PER CGBCS SECTION 5.504.4.3.2, CONTRACTOR SHALL PROVIDE VERIFICATION OF COMPLIANCE WITH THIS SECTION AT THE REQUEST OF THE ENFORCING AGENCY. DOCUMENTATION MAY INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:
  - MANUFACTURER'S PRODUCT SPECIFICATIONS
  - FIELD VERIFICATION OF ON-SITE PRODUCT CONTAINERS

- PER CGBCS SECTION 5.504.4.4, CONTRACTOR TO ENSURE THAT ALL CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF ONE OF THE FOLLOWING:
  - CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM
  - CALIFORNIA DEPARTMENT OF PUBLIC HEALTH STANDARD PRACTICE FOR TESTING OF VOC'S (SPECIFICATION 01350)
  - CNSFANSI 140 AT THE GOLD LEVEL
  - SCIENTIFIC CERTIFICATIONS SYSTEMS SUSTAINABLE CHOICE

CARPET CUSHIONS: ALL CARPET CUSHIONS INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE GREEN LABEL PROGRAM

CARPET ADHESIVE: ALL CARPET ADHESIVE SHALL MET THE REQUIREMENTS OF TABLE 5.504.4.1

- PER CGBCS SECTION 5.504.4.5, CONTRACTOR TO ENSURE THAT HARDWOOD PLYWOOD, PARTICLEBOARD, AND MEDIUM DENSITY FIBERBOARD COMPOSITE WOOD PRODUCTS USED ON THE INTERIOR OR EXTERIOR OF THE BUILDING SHALL MEET THE REQUIREMENTS FOR FORMALDEHYDE AS SPECIFIED IN ARB'S AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD (17 CCR 93120 et seq.) BY OR BEFORE THE DATES SPECIFIED IN THOSE SECTIONS, AS SHOWN IN TABLE 5.504.4.5

### FORMALDEHYDE LIMITS PRODUCT CURRENT LIMIT

HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
FIBERBOARD MEDIUM DENSITY	0.11
FIBERBOARD THIN MEDIUM DENSITY	0.13

- PER CGBCS SECTION 5.504.4.6, CONTRACTOR SHALL ENSURE THAT 80% OF ALL RESILIENT FLOORING INSTALLED (ONLY APPLICABLE AT SOCCER/LACROSS ENTRY VESTIBULE) OR ADDED TO THE SCOPE DURING CONSTRUCTION, SHALL BE CERTIFIED UNDER THE RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOOR SCORE PROGRAM.
- PER CGBCS SECTION 5.504.5.3, CONTRACTOR TO ENSURE THAT REGULARLY OCCUPIED AREAS OF THE BUILDING ARE PROVIDED WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8.

- PER CGBCS SECTION 5.504.7, WHERE OUTDOOR SMOKING AREAS ARE PROVIDED FOR SMOKING, PROHIBIT SMOKING WITHIN 25 FEET OF BUILDING ENTRIES, OUTDOOR AIR INTAKES AND OPERABLE WINDOWS AND IN BUILDINGS, OR AS ENFORCED BY LOCAL ORDINANCES. WHEN ORDINANCES, REGULATIONS OR POLICIES ARE NOT IN PLACE, POST SIGNAGE TO INFORM BUILDING OCCUPANTS OF THE PROHIBITIONS.

## CGBCS 5.508 - OUTDOOR AIR QUALITY:

- PER CGBCS SECTION 5.508.1, CONTRACTOR TO ENSURE THAT INSTALLATIONS OF HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT SHALL COMPLY WITH THE FOLLOWING:
  - 5.508.1.1 CHLOROFLUOROCARBONS (CFCS) INSTALL HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN CFCS.
  - 5.508.1.2 HALONS. INSTALL HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN HALONS.

# CALGreen Non-Residential Mandatory Measures Compliance Checklist

## DIVISION 5.1 - PLANNING AND DESIGN

Item #	Code Section	Requirement	Design	Permit	Const.	Disc.	Reference	Comments
1.01	6.106.1	Storm Water Pollution Prevention Plan	-	-	-	-	-	Not Applicable
1.02	6.106.4.1	Bicycle Parking & Changing Rooms: Short-Term	-	-	-	-	-	Not Applicable
1.03	6.106.4.2	Bicycle Parking & Changing Rooms: Long-Term	-	-	-	-	-	Not Applicable
1.04	6.106.6.2	Designated Parking	-	-	-	-	-	Not Applicable. Project to use existing parking by CSUF
1.06	6.106.6.3	Electric Vehicle (EV) Charging	-	-	-	-	-	Not Applicable. No new electric vehicle charging stations
1.06	6.106.8	Light Pollution Reduction	-	-	-	-	-	Not Applicable. No new lights in parking lot
1.06	6.106.10	Grading & Paving	-	-	-	-	-	Not Applicable

## DIVISION 5.2 - ENERGY EFFICIENCY

Item No.	Code Section	Requirement	Design	Permit	Const.	Disc.	Reference	Comments
2.01	6.201.1	Comply with the mandatory building standards adopted by the California Energy Commission and codified in the California Energy Code	X	-	-	-	E	E6.1-6.6 See Title 24 Calculations.

## DIVISION 5.3 - WATER EFFICIENCY AND CONSERVATION

Item No.	Code Section	Requirement	Design	Permit	Const.	Disc.	Reference	Comments
3.01	6.303.1.1	Meters: Buildings in Excess of 60,000 S.F.	-	-	-	-	-	N/A
3.02	6.303.1.2	Meters: Excess Consumption	-	-	-	-	-	N/A
3.03	6.303.3	Plumbing fixtures shall meet the maximum water use per this section.	-	-	-	-	-	No new plumbing fixtures.
3.04	6.304.1	Water Budget	-	-	-	-	-	N/A
3.05	6.304.2	Outdoor Potable Water Use	-	-	-	-	-	No irrigation as part of scope of work.
3.06	6.304.3	Irrigation Design	-	-	-	-	-	No irrigation as part of scope of work.

## DIVISION 5.4 - MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

Item No.	Code Section	Requirement	Design	Permit	Const.	Disc.	Reference	Comments
4.01	6.407.1	Weather Protection	-	-	-	-	-	N/A. (E) building to remain
4.02	6.407.2.1	Moisture Control: Sprinklers	-	-	-	-	-	N/A. (E) building to remain
4.03	6.407.2.2	Moisture Control: Entries & Openings	-	-	-	-	-	N/A. (E) building to remain
4.04	6.408.1	Construction Waste Management	-	-	X	GC	Spec 0174.19	See specifications for requirements for recycling/reuse of 60% of nonhazardous construction and demolition materials.
4.05	6.408.1.1	Construction Waste Management Plan	-	-	X	GC	Spec 0174.19	Contractor shall provide a waste management plan at time of permit per 6002.
4.06	6.408.1.2	Waste Management Company	-	-	X	GC	N/A	Contractor shall utilize a management company that can provide verifiable documentation of percentages of construction waste diversion from landfill.
4.07	6.408.1.4	Documentation	-	-	X	GC	N/A	Contractor shall provide enforcing agency which demonstrates compliance with CGBCS.
4.08	6.408.3	Excavated Soil & Land Clearing Debris	-	-	-	-	-	N/A. (E) building to remain
4.09	6.410.1	Recycling By Occupants	X	-	-	-	-	Owner to provide at time of occupancy
4.10	6.410.2	Commissioning	-	X	X	All	Spec 0191.13	
4.10a	6.410.2.1	Owner's Project Requirements (OPR)	-	X	-	All	Spec 0191.13	
4.10b	6.410.2.2	Basics of Design (BCD)	-	X	-	All	Spec 0191.13	
4.10c	6.410.2.3	Commissioning Plan	-	X	-	Cx		Commission Agent to prepare Commissioning Plan
4.10d	6.410.2.4	Functional Performance Testing	-	X	GC / Cx	-		Commission Agent to verify and document the Documentation and Training
4.10e	6.410.2.5.1	Documentation & Training: Systems Manual	-	X	GC / Cx		Spec 017900	Commission Agent to verify and document the Documentation and Training
4.10f	6.410.2.5.2	Documentation & Training: Systems Operations	-	X	GC / Cx		Spec 017900	Commission Agent to verify and document the Documentation and Training
4.10g	6.410.2.6	Commissioning Report	-	X	Cx	-		
4.11	6.410.4	Testing & Adjusting	-	-	X	GC	Spec 014000	Contractor to provide Testing and Balancing as part of HVAC scope of work.
4.11a	6.410.4.2	Systems	-	-	X	GC	Spec 014000	Contractor to provide written testing and adjustment procedure for HVAC, Lighting, and Water heater.
4.11b	6.410.4.3	Procedures	-	-	X	GC	Spec 014000	Contractor to perform test and adjustment to manufacturer's specifications.
4.11c	6.410.4.3.1	Procedures: HVAC Balancing	-	-	X	GC	Spec 014000	Contractor to test and adjust HVAC balance which complies with TABBNs, NEBBPS, AABCNS or as approved by the enforcing agency.
4.11d	6.410.4.4	Reporting	-	-	X	GC	Spec 014000	Final report to be signed by individual responsible to testing.
4.11e	6.410.4.5	Operation & Maintenance Manual	-	-	X	GC	Spec 017823	Contractor shall provide detailed O&M to owner or representative.
4.11f	6.410.4.5.1	Inspections & Reports	-	-	X	GC	Spec 014000	Contractor shall provide detailed O&M to owner or representative.

## DIVISION 5.5 - ENVIRONMENTAL QUALITY

Item No.	Code Section	Requirement	Design	Permit	Const.	Disc.	Reference	Comments
5.01	6.603.1	Fireplaces	-	-	-	-	-	No fireplaces provided
5.02	6.603.1.1	Woodstoves	-	-	-	-	-	No woodstoves provided
5.03	6.604.3	Covering of Duct Openings & Protection of Mechanical Equipment During Construction	X	-	X	M / GC	-	Covering of duct openings
5.04	6.604.4	Finish Material Pollutant Control	X	-	X	A / GC	G003	Refer to specifications for requirements. Actual compliance is Contractor responsibility.
5.04a	6.604.4.1	Adhesives, Sealants, Caulks	X	-	X	A / GC	G003	
5.04b	6.604.4.3	Paints & Coatings	X	-	X	A / GC	G003	
5.04c	6.604.4.3.1	Paints & Coatings: Aerosol Paints & Coatings	X	-	X	A / GC	G003	
5.04d	6.604.4.3.2	Paints & Coatings: Verification	X	-	X	A / GC	G003	
5.04e	6.604.4.4	Carpet Systems	X	-	X	A / GC	G003	
5.04f	6.604.4.4.1	Carpet Systems: Carpet Cushion	X	-	X	A / GC	G003	
5.04g	6.604.4.4.2	Carpet Systems: Carpet Adhesive	X	-	X	A / GC	G003	
5.04h	6.604.4.5	Composite Wood Products	X	-	X	A / GC	G003	
5.04i	6.604.4.6	Resilient Flooring Systems	X	-	X	A / GC	G003	
5.05	6.604.6.3	Filters	-	-	-	-	-	
5.06	6.604.7	Environmental Tobacco Smoke (ETS) Control	-	-	-	-	-	
5.07	6.606.1	Indoor Moisture Control	-	-	-	-	-	
5.08	6.606.1	Outside Air Delivery	-	-	-	-	-	
5.09	6.606.2	Carbon Dioxide (CO2) Monitoring	-	-	-	-	-	
5.10	6.607.4.1	Acoustical Control: Exterior Noise Transmission	-	-	-	-	-	No new exterior walls or windows as a part of scope of work.
5.11	6.607.4.3	Acoustical Control: Interior Sound	-	-	-	-	-	No new wall partitions separating different tenants.
5.12	6.608.1	Ozone depletion and global warming reductions (no CFCs and Halons)	-	-	-	-	-	

- O Owner
- C Civil Engineer
- A Architect
- P Plumbing Designer
- M Mechanical Engineer
- E Electrical Engineer
- L Landscape Designer
- GC General Contractor
- Cx Commissioning Agent

PH

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PROJECT:  
**UC Merced**  
**Kolligian Library 3W Renovation**  
 5200 Lake Road, Merced, CA 95343  
 SHEET: CalGREEN

### DRAWING SET INFORMATION:

07.10.2018 Bid Set

### REVISIONS:

No.	Description

### PROJECT NUMBER:

2018-18

### SHEET NUMBER:

G003

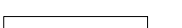


**Keynotes**

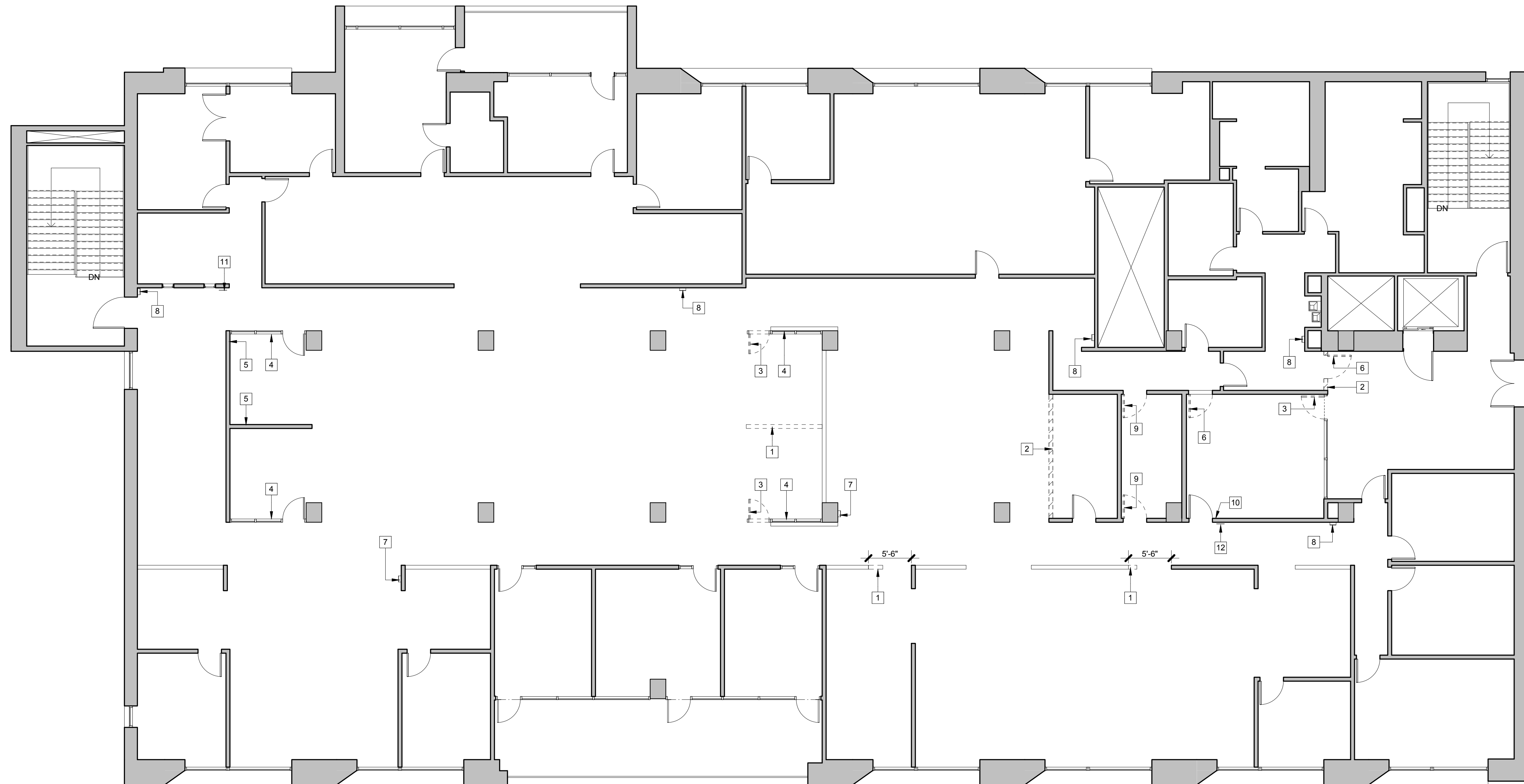
- 1 Remove portion of (E) pony wall as needed for new construction, typ.
- 2 Remove (E) wall, typ.
- 3 Remove and salvage (E) door from storefront system, typ.
- 4 (E) Full height storefront wall to remain, typ.
- 5 (E) wall to remain, typ.
- 6 Remove (E) door and frame, typ.
- 7 Remove (E) fire extinguisher, typ.
- 8 (E) Fire extinguisher cabinet to remain, typ.
- 9 Remove and salvage (E) door, frame to remain, typ.
- 10 Remove and salvage (E) card reader for reinstallation, typ.
- 11 Remove room number/name sign and keep for reinstallation, typ.
- 12 Remove sign and salvage to Owner, typ.

**General Notes**

- 1) Reinforcing at (E) concrete: Do not cut, drill, or damage any reinforcement in existing concrete walls, floors or roof framing members unless otherwise noted. The contractor shall be responsible to locate existing rebar by scanning or other nondestructive methods as necessary, prior to drilling, coring or anchoring in existing concrete, to avoid damage to the reinforcement.
- 2) Keynotes apply to this sheet only.
- 3) All items shown, but not noted are to be considered (E) to remain, typ. u.n.o.
- 4) Salvage all doors removed as a part of demo phase. Where feasible, reuse these doors in new locations prior to ordering new doors.
- 5) Remove all door stops within project area. Reuse throughout project area at new doors.

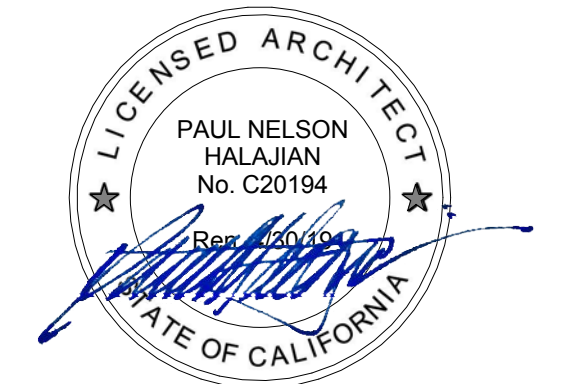
**Legend**

-  (E) pony wall to remain
-  (E) full height wall to remain
-  (E) storefront wall to remain



1 Floor Plan (Demo)  
1/8" = 1'-0"

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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343  
**SHEET: Demo Floor Plan**

**DRAWING SET INFORMATION:**

07.10.2018 Bid Set

**REVISIONS:**

NO.	DESCRIPTION	DATE

**PROJECT NUMBER:**

2018-18

**SHEET NUMBER:**

D201

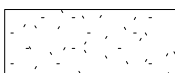
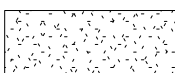
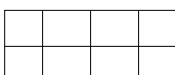
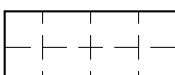
**Keynotes**

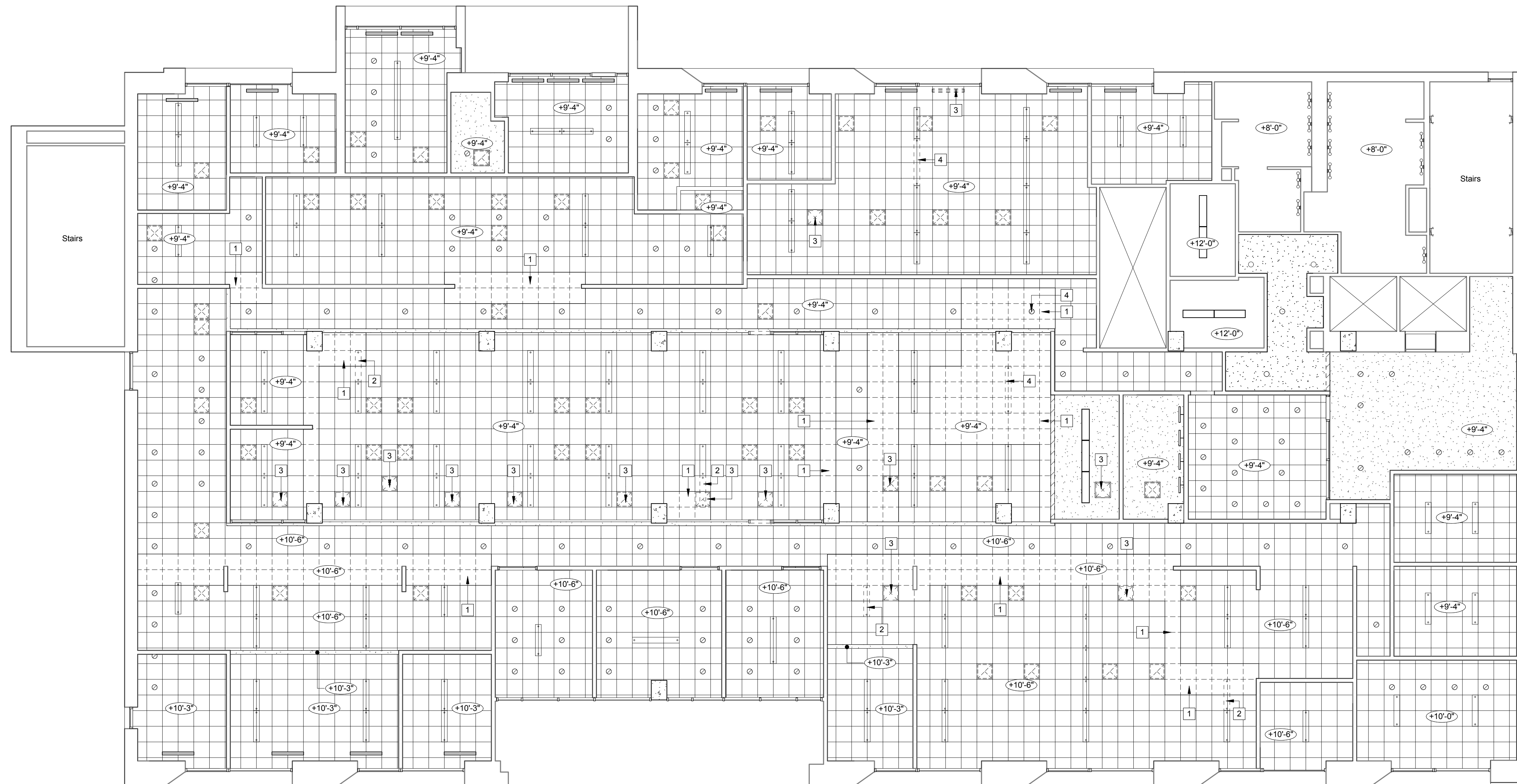
- 1 Remove (E) ceiling tiles and grid as needed for new construction, typ.
- 2 Remove (E) light fixture, typ.
- 3 Remove (E) grille per Mechanical, typ.
- 4 Remove (E) light fixture, typ. Salvage for re-installation. Refer to forthcoming Electrical drawings.

**General Notes**

- 1. Reinforcing at (E) concrete: Do not cut, drill, or damage any reinforcement in existing concrete walls, floors or roof framing members unless otherwise noted. The contractor shall be responsible to locate existing rebar by scanning or other nondestructive methods as necessary, prior to drilling, coring or anchoring in existing concrete, to avoid damage to the reinforcement.
- 2. Keynotes apply to this sheet only.
- 3. All items shown, but not noted are to be considered (E) to remain, typ. u.n.o.
- 4. Electrical and Mechanical shown here are for reference only. Refer to that discipline's sheets for more information.

**Ceiling Legend**

-  (E) GWB ceiling to remain
-  (E) exposed structure to remain
-  (E) 2x2 acoustic suspended ceiling system to remain
-  Remove (E) 2x2 acoustic suspended ceiling system



1 Reflected Ceiling Plan (Demo)  
1/8" = 1'-0"

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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
 5200 Lake Road, Merced, CA 95343  
**SHEET: Demo Reflected Ceiling Plan**

**DRAWING SET INFORMATION:**

07.10.2018	Bid Set
<b>REVISIONS:</b>	

**PROJECT NUMBER:**  
2018-18

**SHEET NUMBER:**  
D601



**Keynotes**

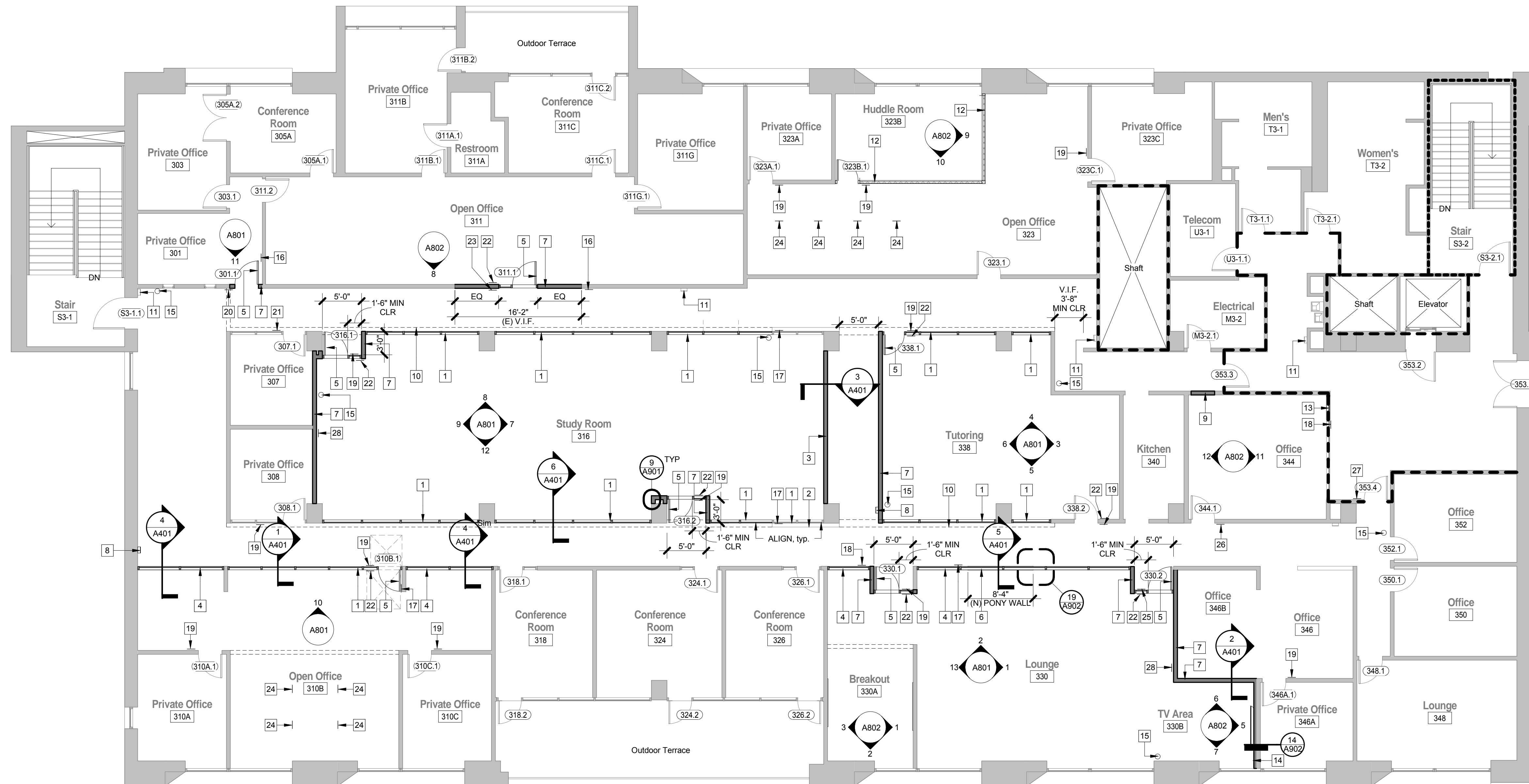
- 1 New full height storefront wall, typ.
- 2 (E) Pony wall to remain, typ.
- 3 New framed wall on top of (E) pony wall
- 4 New storefront wall on top of (E) pony wall
- 5 Flush door and frame, see Door Schedule A702
- 6 New framed pony wall below storefront
- 7 New framed wall, typ.
- 8 Fire Extinguisher Cabinet, semi-recessed; Provide signage per DCFM requirements.
- 9 Infill framed wall where door was removed
- 10 Dashed line indicates soffit above, see RCP on A601
- 11 (E) Fire extinguisher cabinet to remain, typ.
- 12 New demountable partition, by others to match existing
- 13 Infill storefront panel with glazing where door was removed, typ.
- 14 New furred wall, typ.
- 15 Security camera, OFCI, Provide cabling for IP cameras. Refer to forthcoming Electrical drawings.
- 16 Remove signage and keep for reinstallation, typ.
- 17 Remove sign and salvage to Owner, typ.
- 18 Remove room number/name sign and keep for reinstallation, typ.
- 19 Install room number/name sign, OFCI.
- 20 Reinstall sign type 2, Room 301, OFCI.
- 21 Reinstall sign type 2, Room 307, OFCI.
- 22 Install exit sign, OFCI.
- 23 Reinstall sign type 2, Room 311, OFCI.
- 24 Install new room number/name sign on sliding workstation doors, OFCI.
- 25 Reinstall sign type 2, Room 330, OFCI.
- 26 Reinstall sign type 2, Room 344, OFCI.
- 27 Install sign type 21, OFCI.
- 28 Install maximum occupancy sign for this room, OFCI.

**General Notes**

- 1) Reinforcing at (E) concrete: Do not cut, drill, or damage any reinforcement in existing concrete walls, floors or roof framing members unless otherwise noted. The contractor shall be responsible to locate existing rebar by scanning or other nondestructive methods as necessary, prior to drilling, coring or anchoring in existing concrete, to avoid damage to the reinforcement.
- 2) Keynotes apply to this sheet only.
- 3) Room numbering shown here is not to be used for room signage. Confirm with University prior to fabrication.
- 4) All items shown but not noted are to be considered (E) to remain, typ. u.n.o.
- 5) Remove all door stops within project area. Reuse throughout project area at new doors.
- 6) All egress corridors shall be 44" minimum clear, typ. u.n.o.

**Legend**

- (E) pony wall to remain
- (E) full height wall to remain
- (E) storefront wall to remain
- New full height wall
- New storefront wall
- 1-hr fire rated wall
- 2-hr fire rated wall



1 Floor Plan (Proposed)  
1/8" = 1'-0"



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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343  
**SHEET: Proposed Floor Plan**

**DRAWING SET INFORMATION:**

07.10.2018	Bid Set
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**REVISIONS:**

NO.	DESCRIPTION

**PROJECT NUMBER:**  
2018-18

**SHEET NUMBER:**  
A201



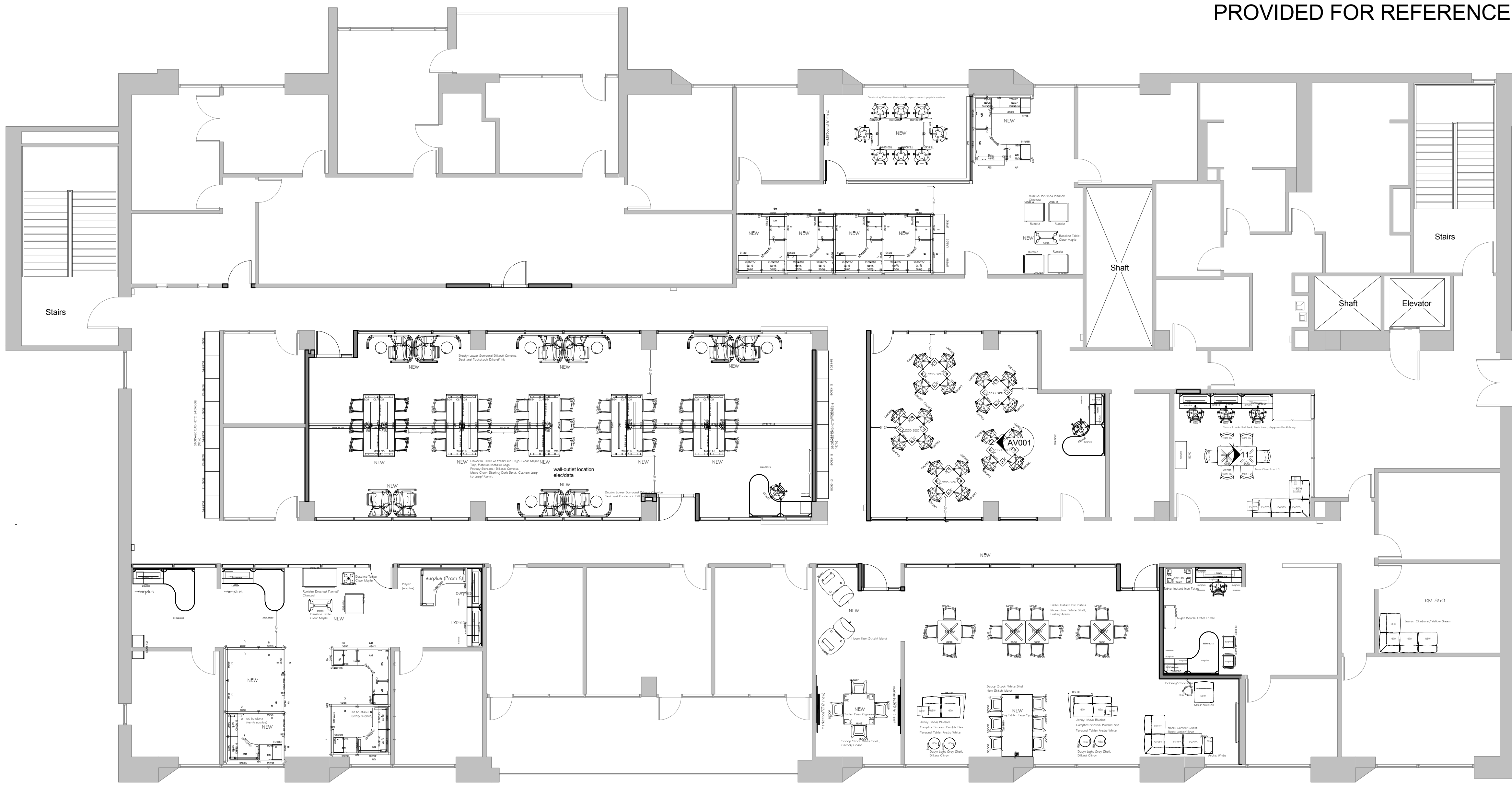
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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343  
**SHEET:** Furniture Plan

**DRAWING SET INFORMATION:**

07.10.2018 Bid Set

**REVISIONS:**

NO.	DESCRIPTION

**PROJECT NUMBER:**

2018-18

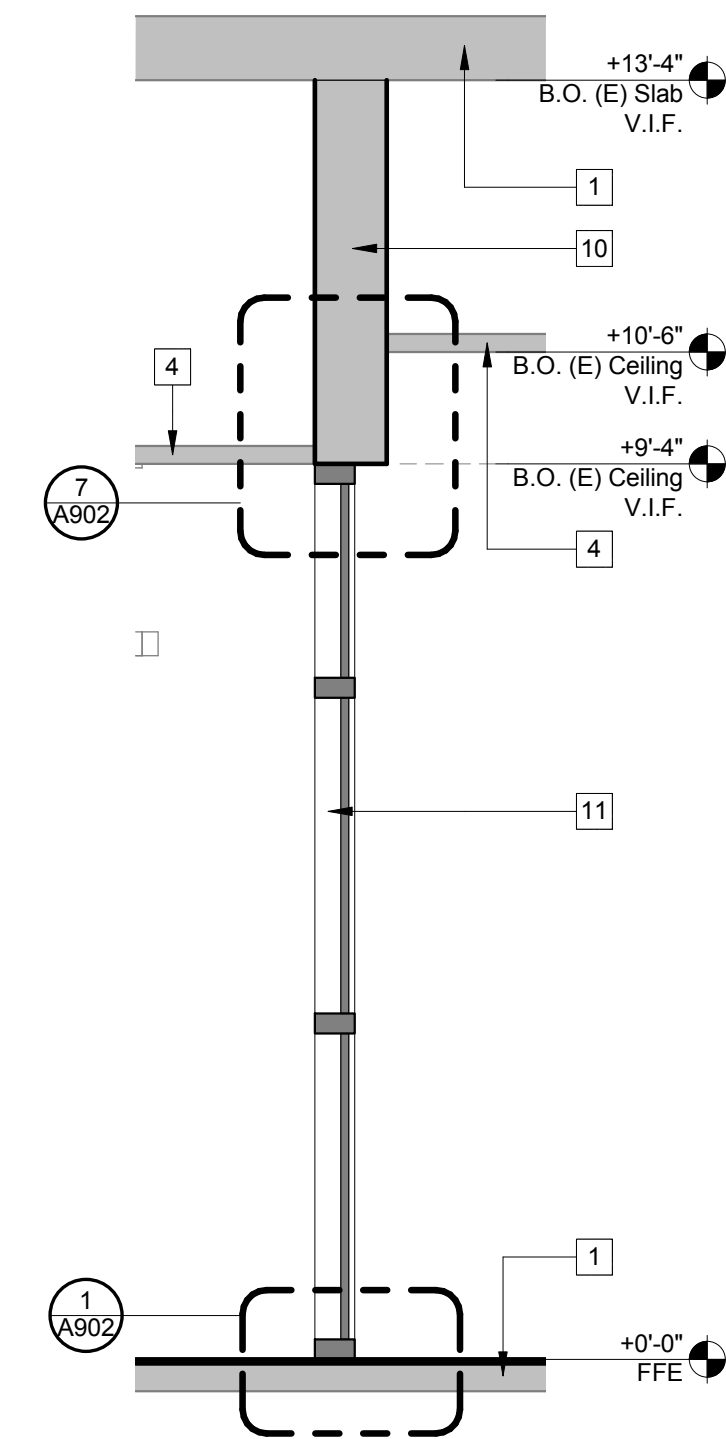
**SHEET NUMBER:**

A202

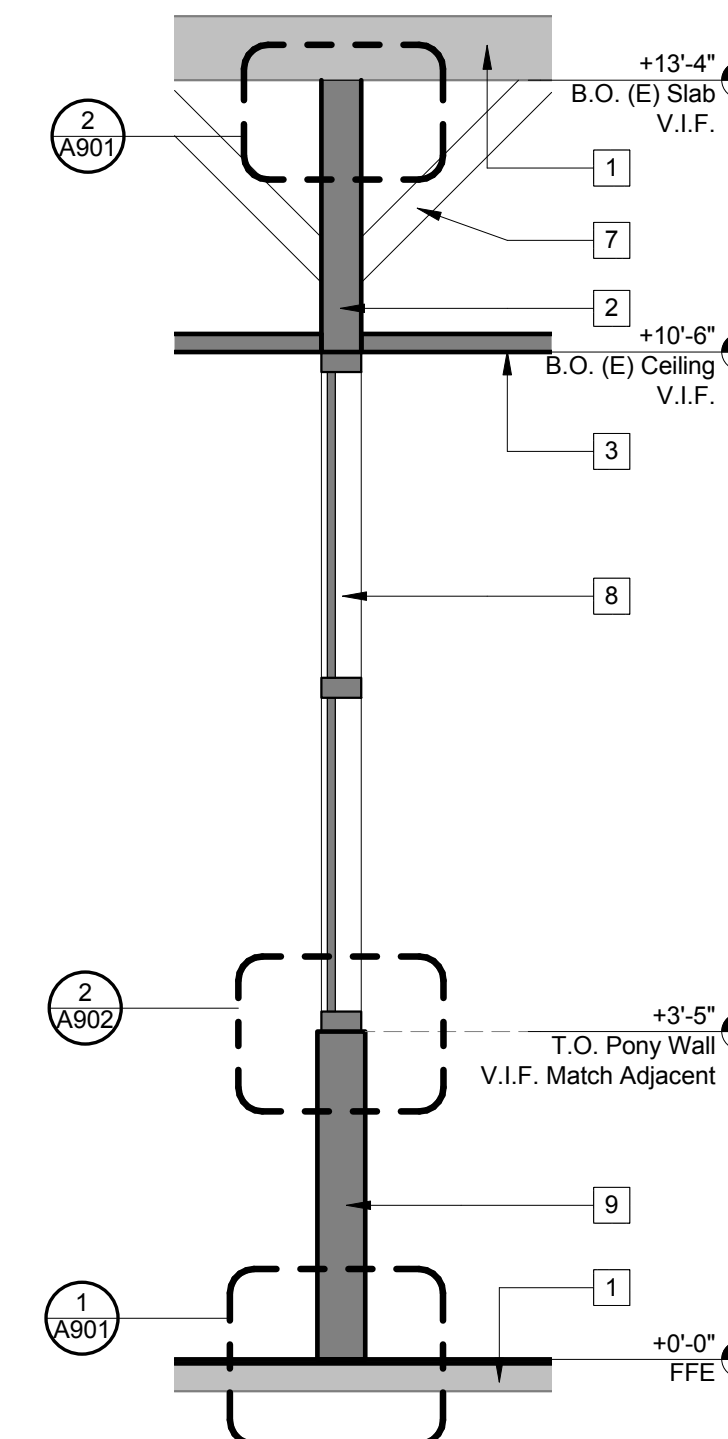
1 Floor Plan (Proposed) w/Furniture  
1/8" = 1'-0"

Keynotes

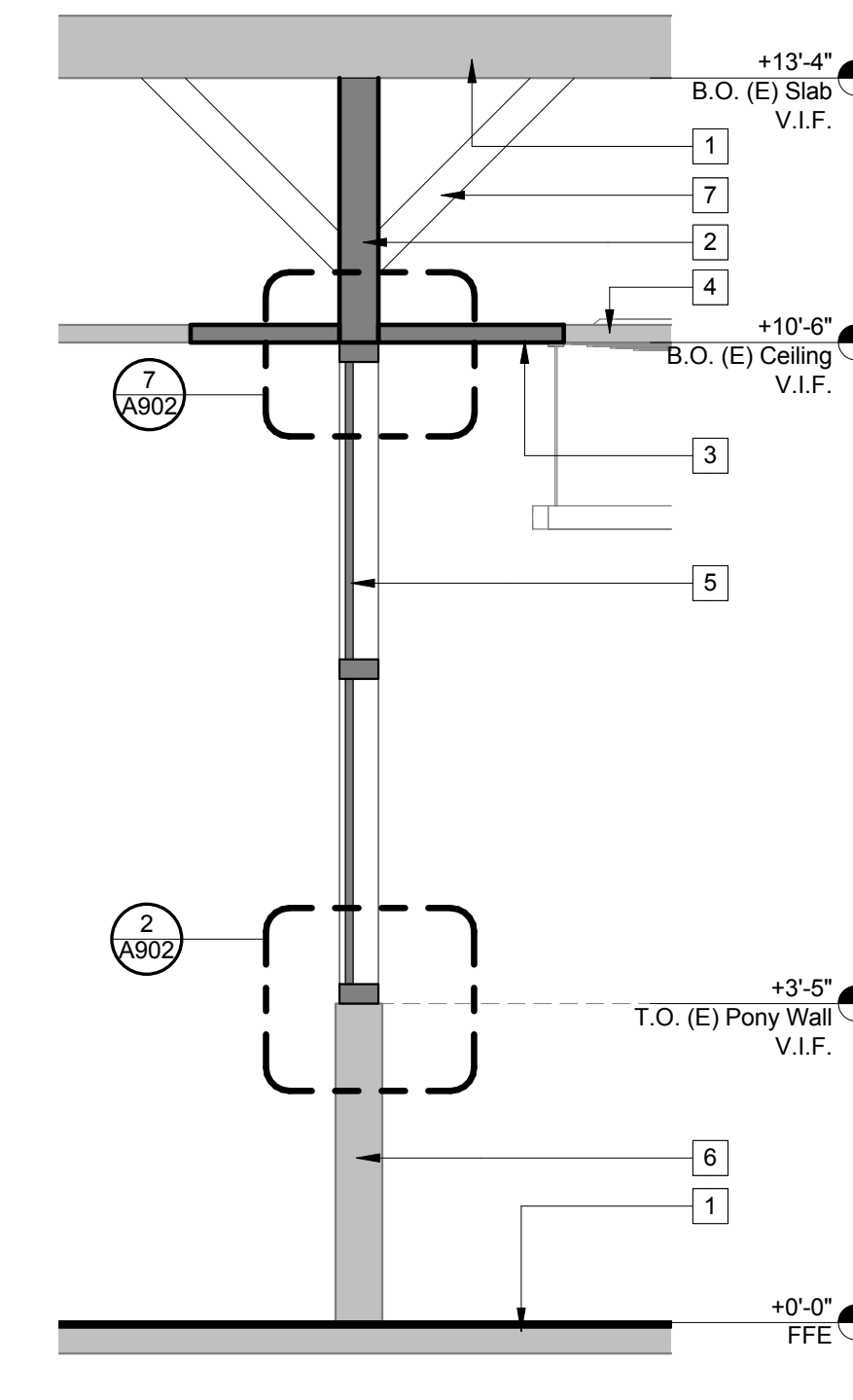
- 1 (E) Slab to remain, typ.
- 2 New framed wall, typ.
- 3 Infill ceiling tiles and grid as needed for new construction, typ.
- 4 (E) Suspended acoustic ceiling to remain, typ.
- 5 New storefront wall on top of (E) pony wall
- 6 (E) Pony wall to remain, typ.
- 7 Diagonal bracing, see detail 20/A902, typ.
- 8 New storefront on new pony wall to match (E) adjacent
- 9 New framed pony wall below storefront
- 10 (E) Soffit to remain, typ.
- 11 New full height storefront wall, typ.



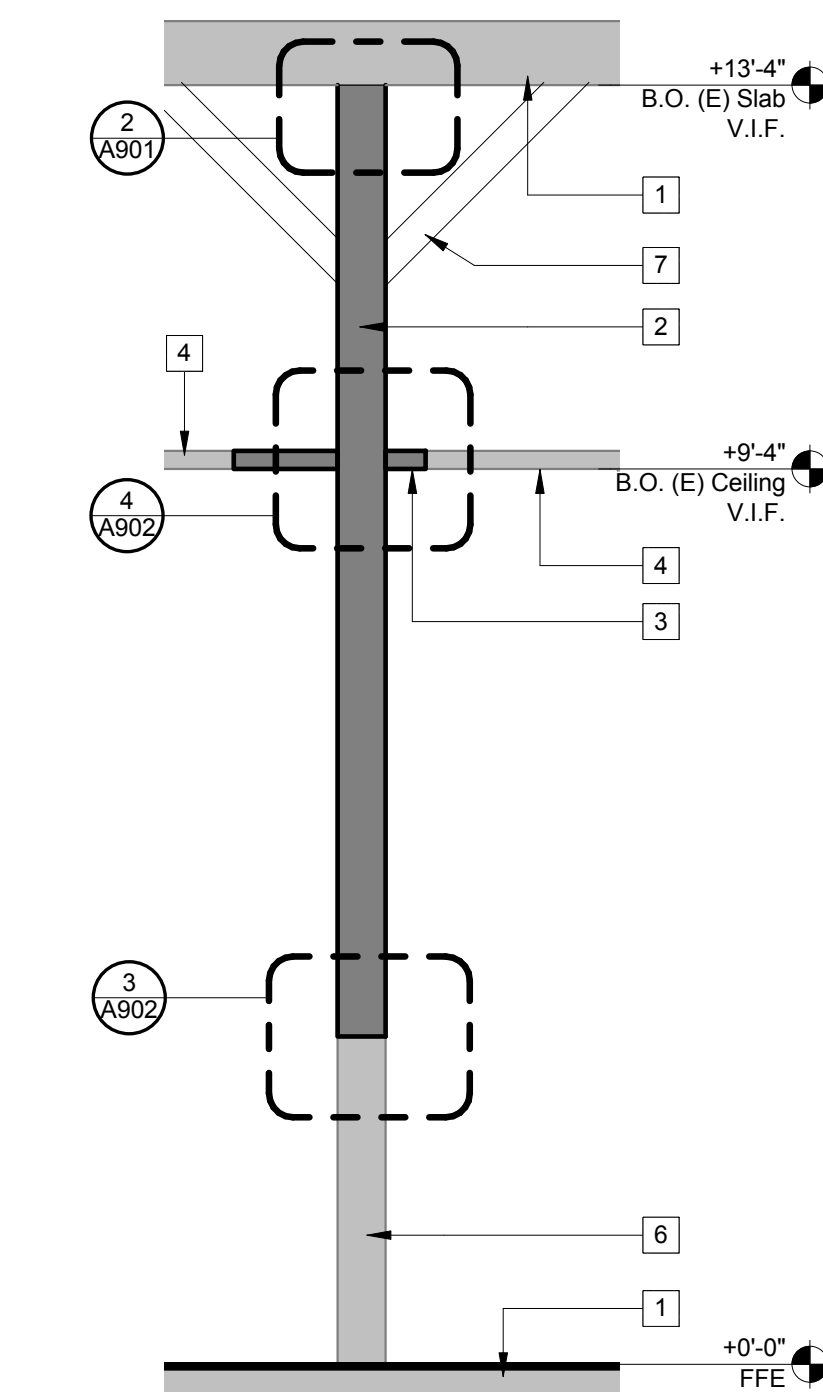
6 New Storefront @ Unequal Ceiling  
1/2" = 1'-0"



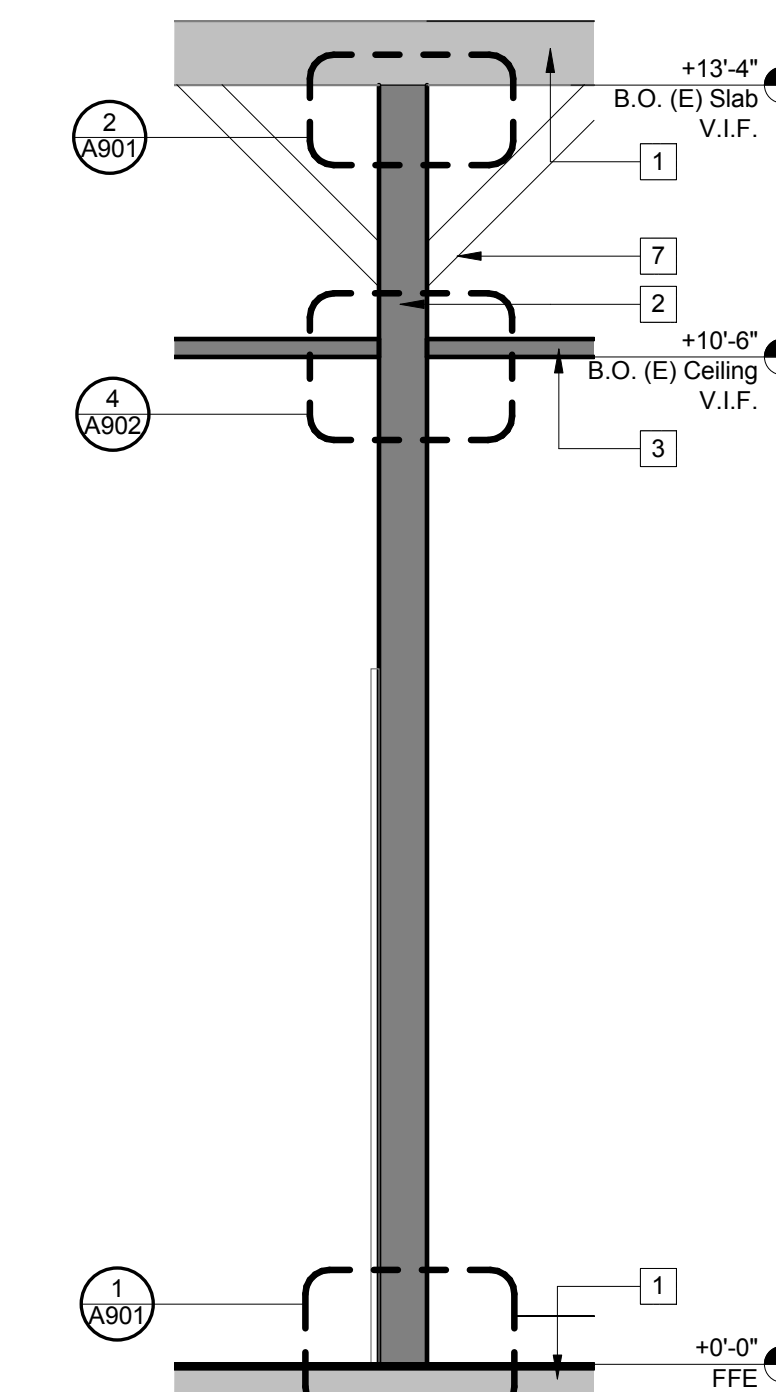
5 New Storefront on New Pony Wall  
1/2" = 1'-0"



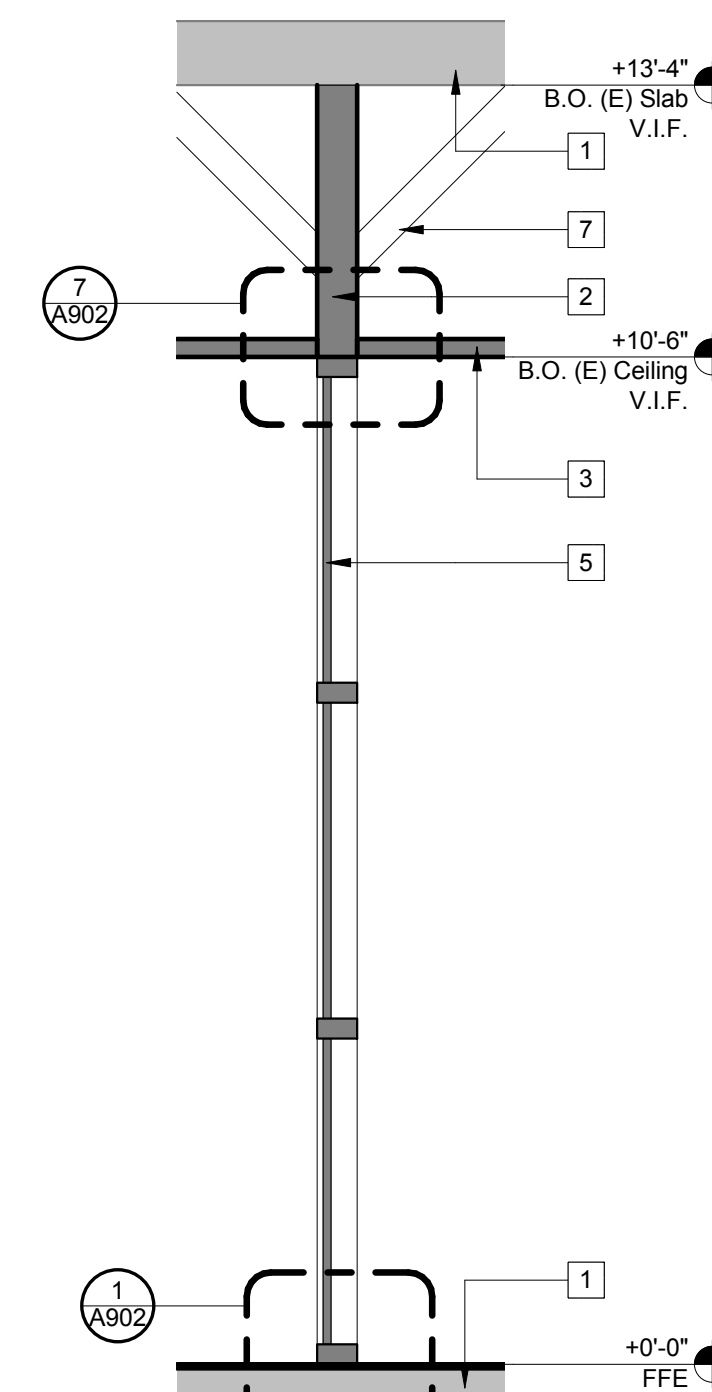
4 New Storefront on (E) Pony Wall  
1/2" = 1'-0"



3 New Framed Wall on (E) Pony Wall  
1/2" = 1'-0"



2 New Framed Wall  
1/2" = 1'-0"

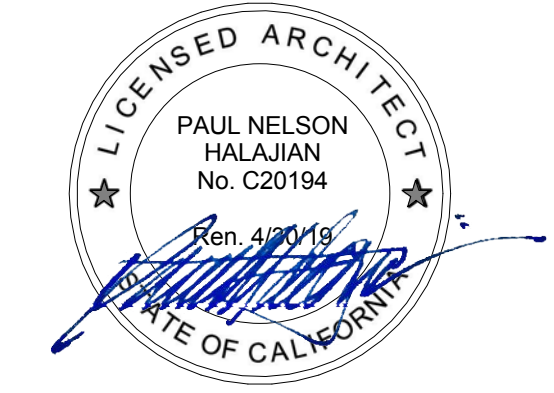


1 New Storefront  
1/2" = 1'-0"

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PROJECT:  
**UC Merced  
Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343

SHEET: Wall Sections

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:

NO.	DESCRIPTION

PROJECT NUMBER:  
2018-18

SHEET NUMBER:  
A401


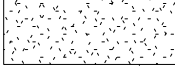
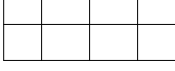
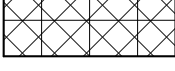
**Keynotes**

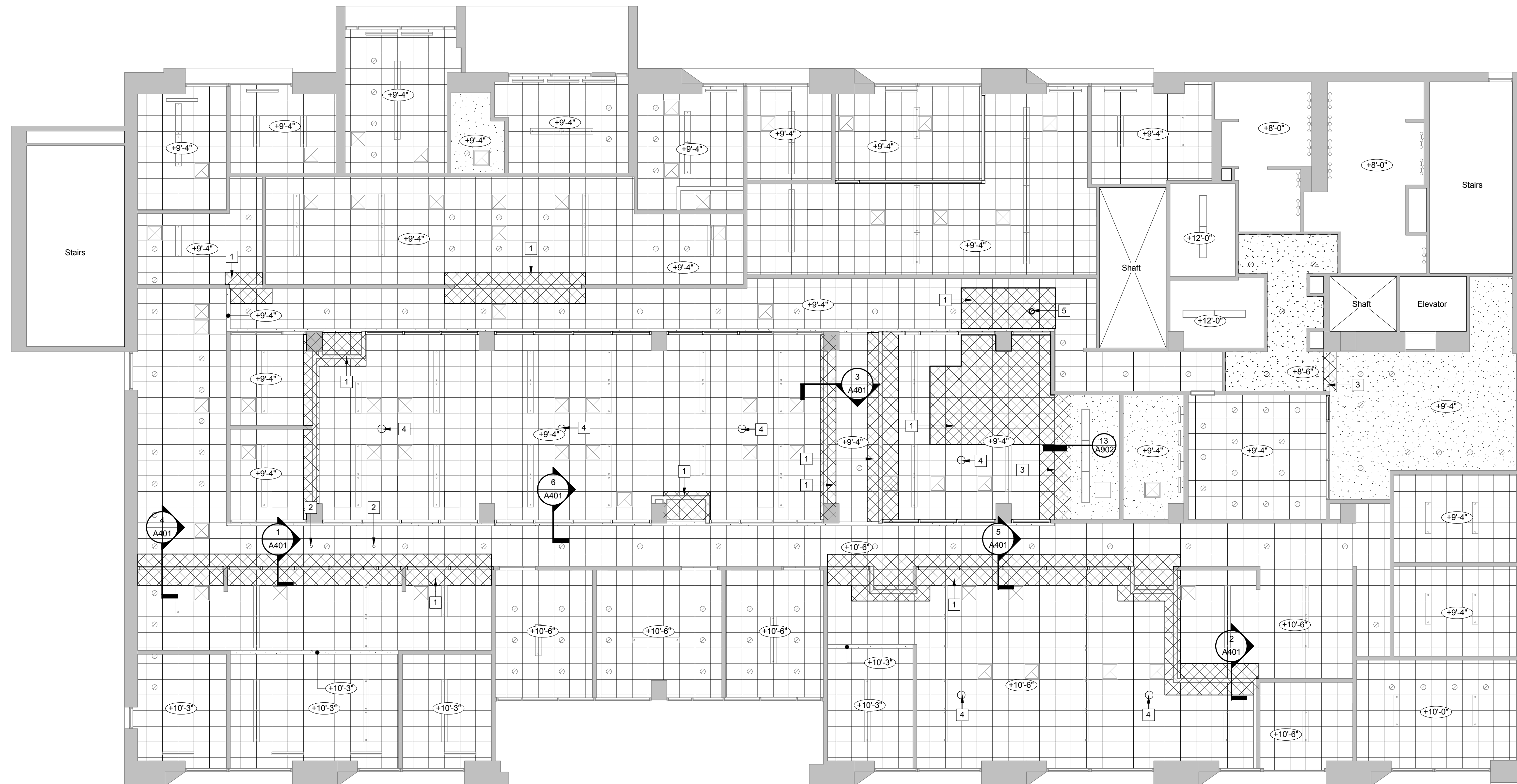
- 1 New acoustic panel ceiling and grid, typ.
- 2 Approximate location of fire sprinkler head, typ. Deferred approval item to be designed/installed by fire sprinkler sub.
- 3 Patch and repair ceiling to match (E) adjacent where wall was removed, typ.
- 4 WAP, OFCI, provide data per forthcoming Electrical drawings, typ.
- 5 Reinstall salvaged light fixture

**General Notes**

1. Reinforcing at (E) concrete: Do not cut, drill, or damage any reinforcement in existing concrete walls, floors or roof framing members unless otherwise noted. The contractor shall be responsible to locate existing rebar by scanning or other nondestructive methods as necessary, prior to drilling, coring or anchoring in existing concrete, to avoid damage to the reinforcement.
2. Keynotes apply to this sheet only.
3. All items shown, but not noted are to be considered (E) to remain, typ. u.n.o.

**Ceiling Legend**

-  (E) GWB ceiling to remain
-  (E) exposed structure to remain
-  (E) 2x2 acoustic suspended ceiling system to remain
-  New 2x2 acoustic suspended ceiling system



1 Reflected Ceiling Plan (Proposed)  
1/8" = 1'-0"

**PH**

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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
 5200 Lake Road, Merced, CA 95343  
**SHEET: Proposed Reflected Ceiling Plan**

**DRAWING SET INFORMATION:**

07.10.2018 Bid Set

**REVISIONS:**

NO.	DESCRIPTION

**PROJECT NUMBER:**  
2018-18

**SHEET NUMBER:**  
A601

Finish Schedule

Finish Schedule																				
Number	Room	Flooring	Base	North			East			South			West			Ceiling			Comments	
				Type	Texture	Finish	Type	Texture	Finish	Type	Texture	Finish	Type	Texture	Finish	Type	Texture	Finish		
301	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)GWB	(E)4	P-1	(E)	(E)	P-1	AC	-	-	-	
303	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
305	Copy Room	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
305A	Conference Room	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
307	Private Office	CPT	RB	(E)	(E)	FF	GWB	4	P-1	(E)	(E)	P-1	(E)	(E)	P-1	AC	-	-	-	
308	Private Office	CPT	RB	(E)	(E)	P-1	GWB	4	P-1	(E)	(E)	FF	(E)	(E)	P-1	AC	-	-	-	
310A	Private Office	CPT	RB	(E)	(E)	FF	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
310B	Open Office	CPT	RB	(E)JSF	(E)JFF	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	AC	-	-	-	
310C	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
311	Open Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
311A	Restroom	PT	PT	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
311B	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
311C	Conference Room	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
311F	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
311G	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
316	Study Room	CPT	RB	GWB/SF	4/FF	P-5/FF	(E)GWB	(E)4	P-5	GWB/SF	4/FF	P-5	GWB	4	P-5	AC	-	-	3, 5	
318	Conference Room	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
323	Open Office	CPT	RB	(E)DP	(E)JFF	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	-	
323A	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	-	(E)	(E)	P-1	(E)	(E)	(E)	1	
323B	Huddle Room	CPT	RB	(E)	(E)	P-1	DP	-	FF	DP	-	FF	(E)	(E)	P-1	(E)	(E)	(E)	-	
323C	Private Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
324	Conference Room	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
326	Conference Room	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
330	Lounge	CPT	RB	GWB/SF	4/FF	P-1	GWB(E)	4(E)	P-1/P-3	(E)	(E)	P-1	(E)	(E)	P-1	AC	-	-	2	
330A	Breakout	CPT	RB	-	-	-	(E)	(E)	P-3	(E)	(E)	P-3	(E)	(E)	P-3	AC	-	-	2	
330B	TV Area	CPT	RB	GWB	4	P-3	(E)	(E)	P-3	(E)	(E)	P-3	(E)	(E)	P-3	-	-	AC	-	2
338	Tutoring	CPT	RB	(E)JSF	(E)JFF	P-1/FF	(E)	(E)	P-1	(E)JSF	(E)JFF	P-1/FF	GWB	4	P-1	AC	-	-	-	
340	Kitchen	VCT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	-	
344	Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-4	(E)	(E)	(E)	-	
346	Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	AC	-	-	1	
346A	Private Office	CPT	RB	(E)	(E)	FF	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
346B	Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	GWB	4	P-1	GWB	4	P-1	AC	-	-	-	
348	Lounge	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
350	Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
352	Office	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
353	Lobby	CPT	RB	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
M3-2	Electrical	CONC	-	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
S3-1	Stair	CONC	-	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
S3-2	Stair	CONC	-	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
T3-1	Men's	PT	PT	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
T3-2	Women's	PT	PT	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	
U3-1	Telecom	CONC	-	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	P-1	(E)	(E)	(E)	1	

Finish Schedule Comments

- 1) Provided for reference only. Only scope of work in these spaces includes replacing missing, damaged or discolored ceiling tiles, typ. u.n.o.
- 2) See interior elevations for accent paint colors location and extents, typ.
- 3) Paint columns in this space to match adjacent walls, typ. u.n.o.
- 4) See interior elevations of adjacent rooms to see wall types, locations and extents.
- 5) Under carpet electrical system to be provided and installed by others prior to installation of carpet tiles, typ. u.n.o. See electrical drawings.

Finish General Notes

1. Do not install base on full height storefront walls, typ.
2. Replace ceiling tiles where missing, damaged or destroyed, typ. all rooms. See Specifications in Division 01, provided by University for "Unit Price" items.
3. Verify all finishes listed as existing. Match (E) finishes wherever possible. If specified finish materials do not match existing, submit alternate product to Architect for approval.
4. Replace carpet tiles where missing, damaged or destroyed, typ. u.n.o. See Specifications in Division 01, provided by University for "Unit Price" items.
5. Patch and repair wall surfaces if damaged prior to applying new paint/finishes, typ. See Specifications in Division 01, provided by University for "Unit Price" items.
6. New GWB wall finish is to be level 4, typ. u.n.o.

Abbreviations

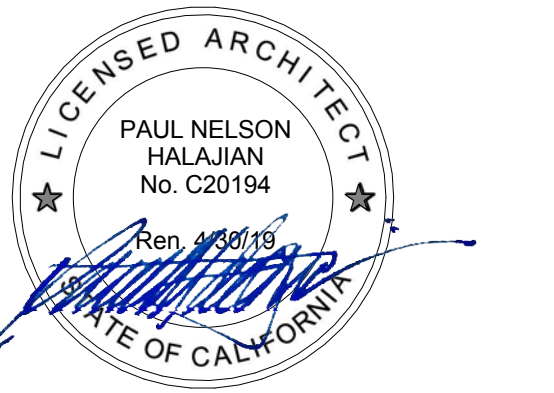
AC	acoustic ceiling	FG	full glass
AL	aluminum	GWB	gypsum wall board
CONC	concrete	P-x	paint
CPT	carpet	PT	porcelain tile
DP	demountable partition	RB	rubber base
EL	elevator	ST	stained
F	flush	VCT	vinyl composite tile
FF	factory finish	WD	wood

Finish Legend

- Paint**
- P-1 - SW 7006 Extra White (eggshell)
  - P-2 - SW 7006 Extra White (semi-gloss)
  - P-3 - SW 9122 Dried Edamame (eggshell)
  - P-4 - SW 6118 Leather Bound (eggshell)
  - P-5 - SW 7660 Earl Grey (eggshell)
- Flooring**
- CPT Manufacturer: Bentley Arcade Legend  
Color: Nitro Racer  
Size: 2' x 2'
- Ceiling**
- AC Tiles: Armstrong Ultima Tegular tiles  
Size: 2' x 2'  
Grid: Armstrong Suprafine
- Base**
- RB Rubber base  
Burke Manufacturing, 6" Black 701
- Doors**
- ST Maple, clear stained to match (E)
- \*\*\*FOR MORE INFORMATION ON FINISHES, SEE SHEET SPECIFICATIONS ON G101-105\*\*\*



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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
 5200 Lake Road, Merced, CA 95343

**SHEET:** Finish Schedule

DRAWING SET INFORMATION:

07.10.2018	Bid Set
------------	---------

REVISIONS:


PROJECT NUMBER:  
**2018-18**

SHEET NUMBER:  
**A701**

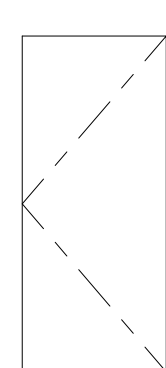
## Door Schedule

Mark	Door Name	Phase	Paired	Door Schedule													Comments
				Door Size			Door			Frame			Fire Rating	Hardware Group			
				Width	Height	Thickness	Type	Material	Finish	Type	Material	Finish					
01b	Elevator	(E)	-	3'-9"	7'-0"	1-3/4"	EL	HM	FF	-	-	-	-	-	1		
301.1	Private Office	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	AL	FF	-	3	3		
303.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
305A.1	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
305A.2	Conference Room	(E)	Y	6'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	-		
307.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	-	1		
308.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	-	1		
310A.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	-	1		
310B.1	Open Office	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	3	AL	FF	-	3	3		
310B.2																	
310B.3																	
310B.4																	
310C.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	-	1		
311.1	Open Office	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	AL	FF	-	2	3		
311.2	Open Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
311A.1	Restroom	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
311B.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
311B.2	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
311C.1	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
311C.2	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	FG	AL	FF	3	AL	FF	-	-	1		
311G.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
316.1	Study Space	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	AL	FF	-	5	-		
316.2	Study Space	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	AL	FF	-	5	-		
318.1	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	4	HM	P-2	-	2	3		
318.2	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	FG	AL	FF	3	AL	FF	-	-	1		
323.1	Open Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	2	3		
323A.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	-	1		
323B.1	Huddle Room	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	1	4		
323C.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	DP	FF	-	-	1		
324.1	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	4	HM	P-2	-	2	3		
324.2	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	FG	AL	FF	3	AL	FF	-	2	3		
326.1	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	4	HM	P-2	-	2	3		
326.2	Conference Room	(E)	-	3'-0"	7'-0"	1-3/4"	FG	AL	FF	3	AL	FF	-	-	1		
330.1	Lounge	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	AL	FF	-	5	-		
330.2	Lounge	NC	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	2	AL	FF	-	5	-		
338.1	Tutoring Space	NC	-	3'-0"	7'-0"	1-3/4"	FG	WD	ST	3	AL	FF	-	1	-		
338.2	Tutoring Space	(E)	-	3'-0"	7'-0"	1-3/4"	FG	WD	ST	1	HM	P-2	-	-	1		
344.1	Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	2	3		
346A.1	Private Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	DP	P-2	2	DP	FF	-	-	1		
348.1	Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	HM	P-2	1	HM	P-2	-	-	1		
350.1	Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	HM	P-2	1	HM	P-2	-	-	1		
352.1	Office	(E)	-	3'-0"	7'-0"	1-3/4"	F	HM	P-2	1	HM	P-2	-	-	1		
353.1	Lobby	(E)	Y	6'-0"	7'-0"	1-3/4"	F	HM	P-2	5	HM	P-2	-	-	1		
353.2	Lobby	(E)	-	3'-9"	7'-0"	1-3/4"	F	HM	P-2	1	HM	P-2	1-HR	-	1, 2		
353.3	Reception Corridor	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	4, 5	-		
353.4	East Corridor	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	4, 5	-		
M3-2.1	Electrical	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
S3-1.1	Stair	(E)	-	4'-0"	7'-0"	1-3/4"	F	HM	P-2	1	HM	P-2	1-HR	-	1, 2		
S3-2.1	Stair	(E)	-	4'-0"	7'-0"	1-3/4"	F	HM	P-2	1	HM	P-2	1-HR	-	1, 2		
T3-1.1	Men's Restroom	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
T3-2.1	Women's Restroom	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		
U3-1.1	Telecom	(E)	-	3'-0"	7'-0"	1-3/4"	F	WD	ST	1	HM	P-2	-	-	1		

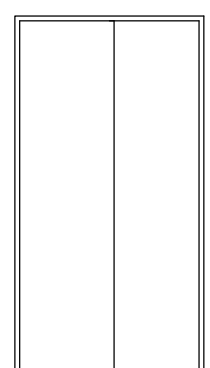
## Door Schedule Comments

- 1) Provided for reference only. Not included in scope of work.
- 2) Verify fire rating in field. Not a part of scope of work.
- 3) Card reader to be installed on corridor side, typ.
- 4) New door in demountable partition system, to be provided by others.

## Door Types

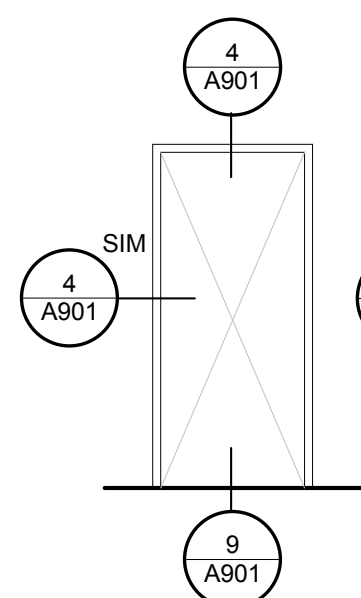


F  
flush

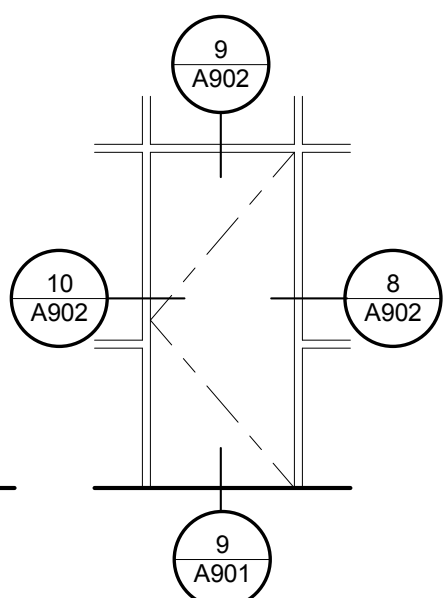


EL  
elevator

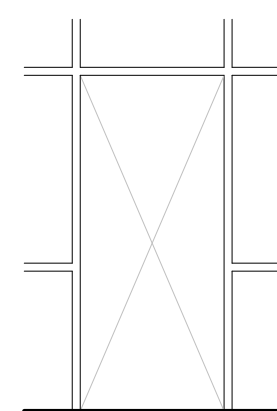
## Frame Types



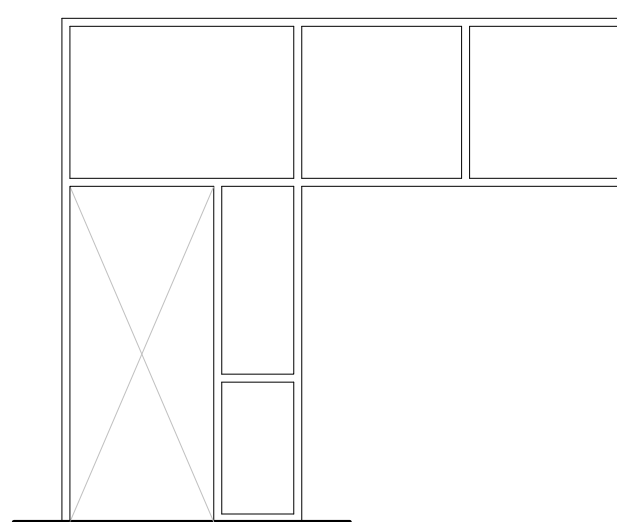
Type 1  
Single door  
HM Frame



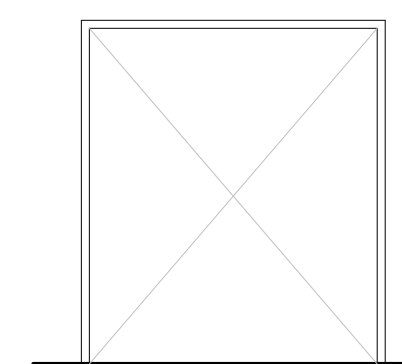
Type 2  
Single door  
SF Frame  
sidelights and transoms vary,  
see interior elevations



Type 3  
Single door  
DP Frame  
sidelights and transoms vary  
all existing to remain



Type 4  
Double door  
HM Frame w/sidelights  
all existing to remain



Type 5  
Double door  
HM Frame  
all existing to remain

## Door General Notes

- 1) Hand activated door operating hardware shall be lever or pulls that are easy to grasp with one hand and do not require grasping, pinching, or twisting of the wrist to operate. No thumb latches or keyed cylinder dead bolts allowed on any doors unless operated by a single action w/ a lever.
- 2) Doors shall be readily operable from the egress side without the use of a key or special knowledge or effort. The unlatching of any door or leaf shall not require more than one operation.
- 3) The force required to push or pull open a door shall not exceed 5 lbs for interior and exterior doors and not more than 15 lbs for required fire rated doors. For swinging doors, the force shall be applied perpendicular to the door at the door operating hardware. For sliding doors, the force shall be measured parallel to the door applied at the pull or latch.
- 4) Operating hardware, levers, pulls, push bars, and locks shall be mounted 34" minimum and 44" maximum above the finish floor or landing level.
- 5) Manually operated surface or flush bolts are not permitted except for the inactive leaf of a pair of doors serving storage or equipment rooms.
- 6) Thresholds at doorways shall not exceed 1/2" in height above the lowest floor level. Changes in elevations greater than 1/4" shall be beveled with a slope not greater than 2:1 horizontal to vertical.
- 7) Bottom 10" of swinging doors shall have a smooth, uninterrupted surface to allow the door to be opened by a wheelchair footrest without creating a trap or hazardous condition.
- 8) If a door has a closer, the sweep period of the closer shall be adjusted so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3" from the latch, measured to the leading edge of the door.
- 9) All grade level exterior exit doors shall be provided with a tactile mounted on the wall adjacent to the strike edge of the door at the egress side of the door.
- 10) Tempered safety glass shall be provided for glazing in doors and windows adjacent to doors where the nearest edge of the glass is within a 24" arc of either vertical edge of a door in a closed position and the bottom of the glazing is less than 60" above the floor.
- 11) All doors shall be 1-3/4" thick, unless noted otherwise.
- 12) Refer to door schedule for door and frame finish.
- 13) For accessible maneuvering clearances at doors, see details.
- 14) See sheet specifications for hardware group information.
- 15) Salvage all doors removed as a part of demo phase. Where feasible, reuse these doors in new locations prior to ordering new doors. Contractor to verify proposed hardware compatibility with (E) doors to be reused. Reuse (E) salvaged hardware to maximum extent feasible. Contractor to verify and coordinate.
- 16) See Finish Legend on A701 for finish information.
- 17) See Specification section 08 70 00 for hardware group information.
- 18) All paint finishes on doors or frames to be semi-gloss, typ. u.n.o.

## Abbreviations

AC	acoustic ceiling	FG	full glass
AL	aluminum	GWB	gypsum wall board
CONC	concrete	P-X	paint
CPT	carpet	PT	porcelain tile
DP	demountable partition	RB	rubber base
EL	elevator	ST	stained
F	flush	VCT	vinyl composite tile
FF	factory finish	WD	wood

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PROJECT:  
**UC Merced Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343

SHEET: Door Schedule

### DRAWING SET INFORMATION:

07.10.2018 Bid Set

### REVISIONS:

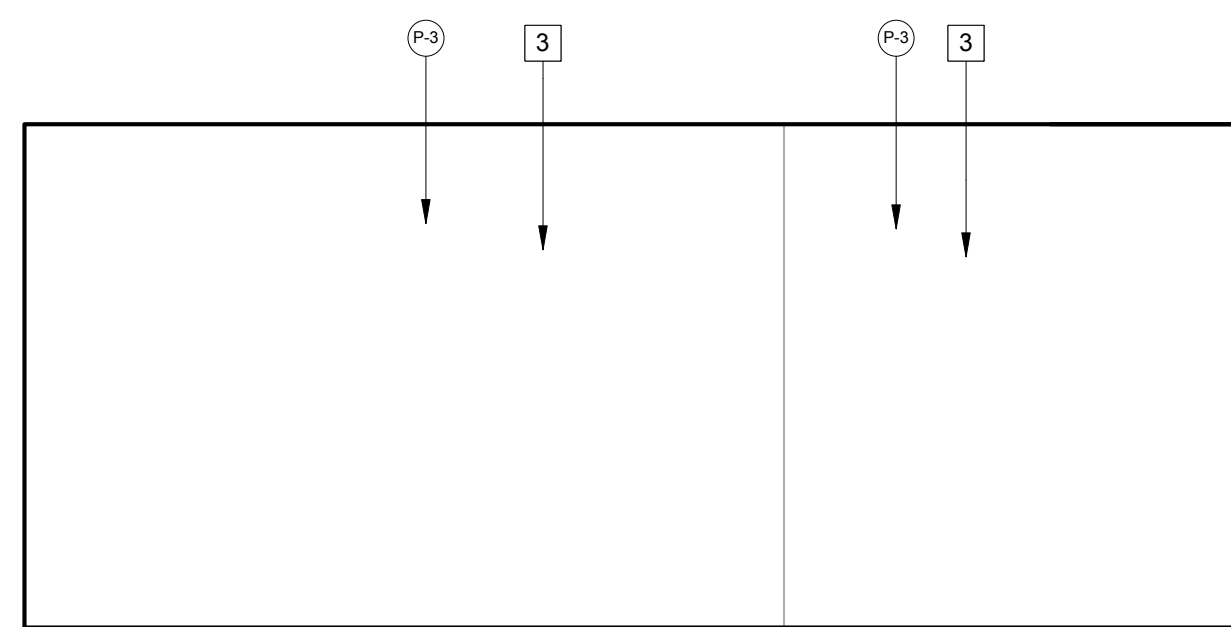
No.	Description

### PROJECT NUMBER:

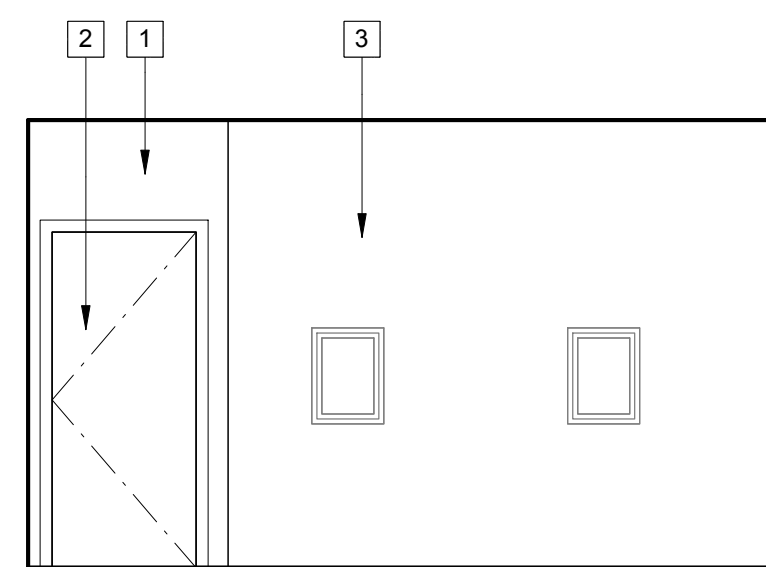
2018-18

### SHEET NUMBER:

A702



13 330 Lounge\_West  
1/4" = 1'-0"



11 301 Office\_South  
1/4" = 1'-0"

General Notes

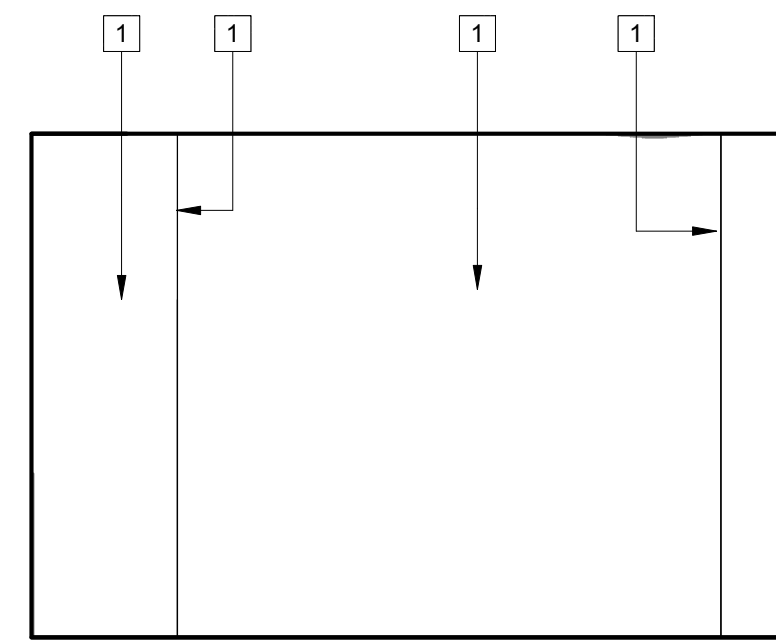
- 1) Keynotes apply to this sheet only.
- 2) See door schedule on A702 for door head, jamb and sill details, typ. u.n.o.
- 3) All items shown but not noted are to be considered (E) to remain, typ. u.n.o.
- 4) Glazing shown with label 'T' is to be tempered safety glass, typ. u.n.o.
- 5) Glazing shown with label 'R' is to be 1-hr fire rated glass, typ. u.n.o.
- 6) All paint to be P-1, typ. u.n.o. See Finish Schedule for more information.
- 7) Paint all new framed walls per Finish Schedule, typ. u.n.o.

Legend

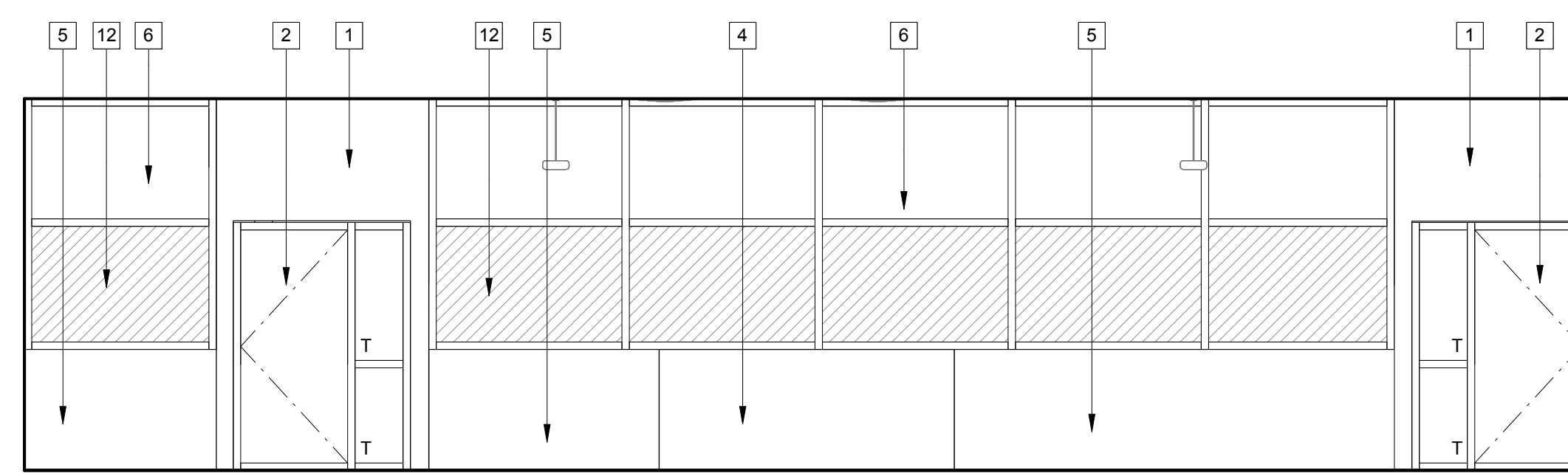
(P-X) → Paint tag, see Finish Schedule

Keynotes

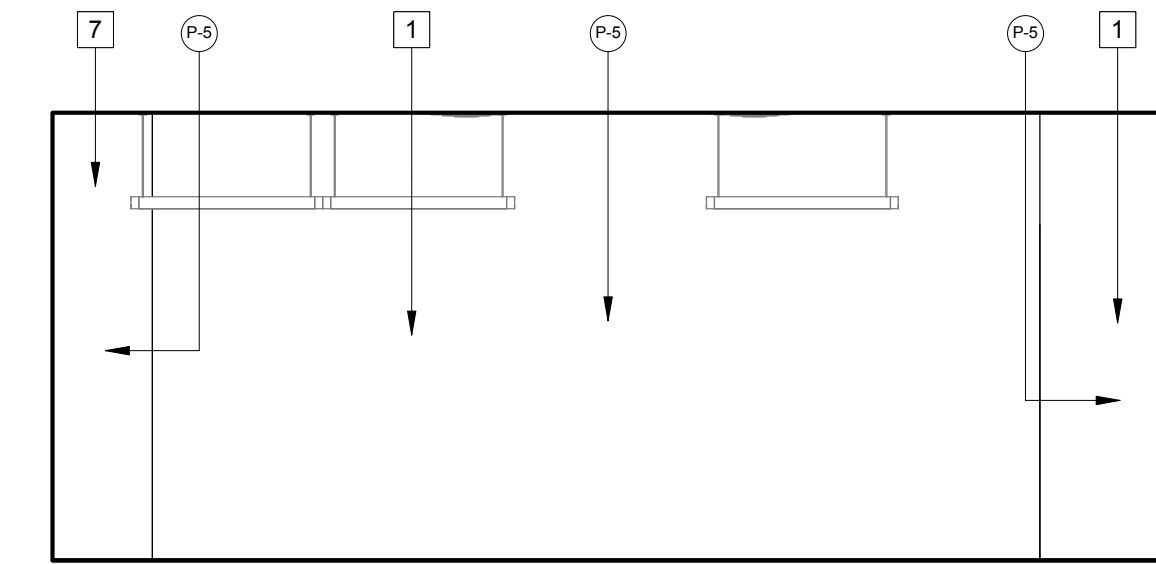
- 1 New framed wall, typ.
- 2 Flush door and frame, see Door Schedule A702
- 3 (E) wall to remain, typ.
- 4 New framed pony wall below storefront
- 5 (E) Pony wall to remain, typ.
- 6 New storefront wall on top of (E) pony wall
- 7 (E) Column to remain, typ.
- 8 New framed wall on top of (E) pony wall
- 9 New full height storefront wall, typ.
- 10 (E) Full height storefront wall to remain, typ.
- 11 (E) door to remain, typ.
- 12 Apply decorative window film on outside surface of glazing, typ. OFCI
- 13 AV equipment, typ. See AV001 for more information.
- 14 Touchscreen control for projector screen, OFCI. Provide power per forthcoming Electrical drawings. Verify exact location with University prior to installation.



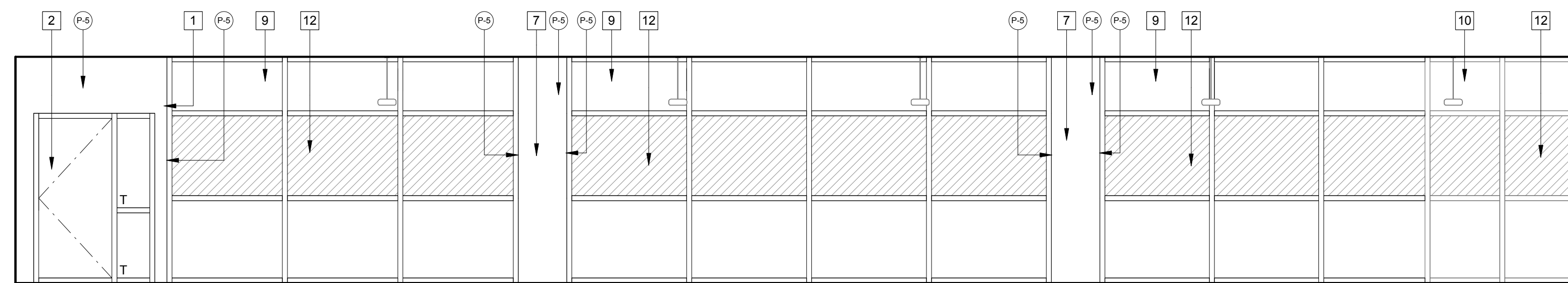
1 330 Lounge\_East  
1/4" = 1'-0"



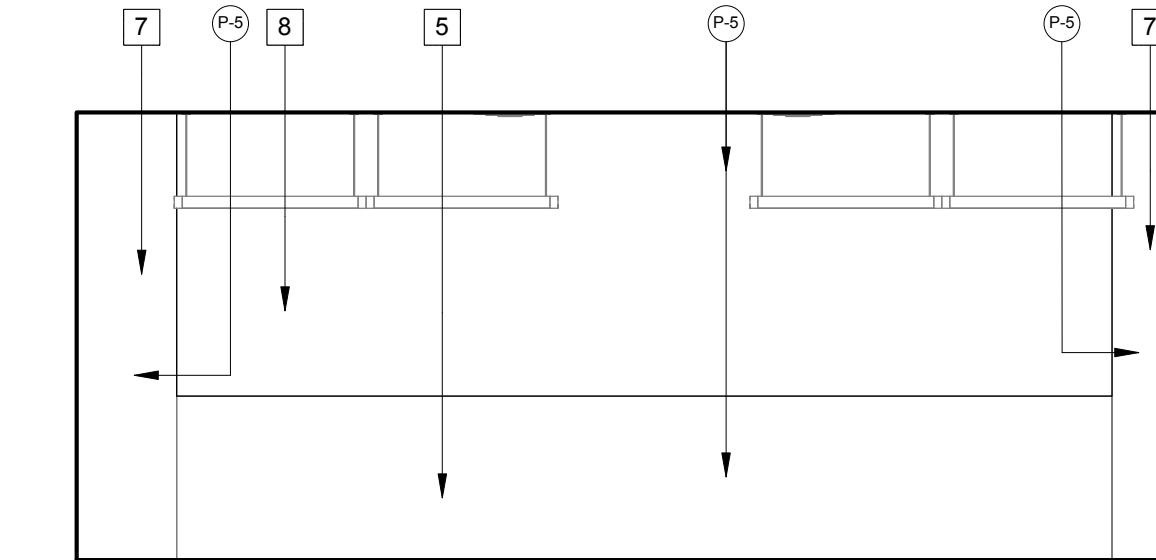
2 330 Lounge\_North  
1/4" = 1'-0"



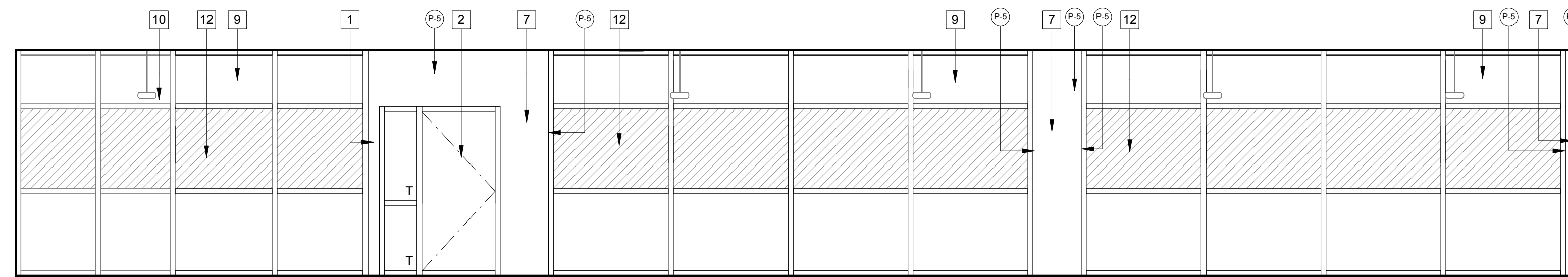
9 316 Study Room\_West  
1/4" = 1'-0"



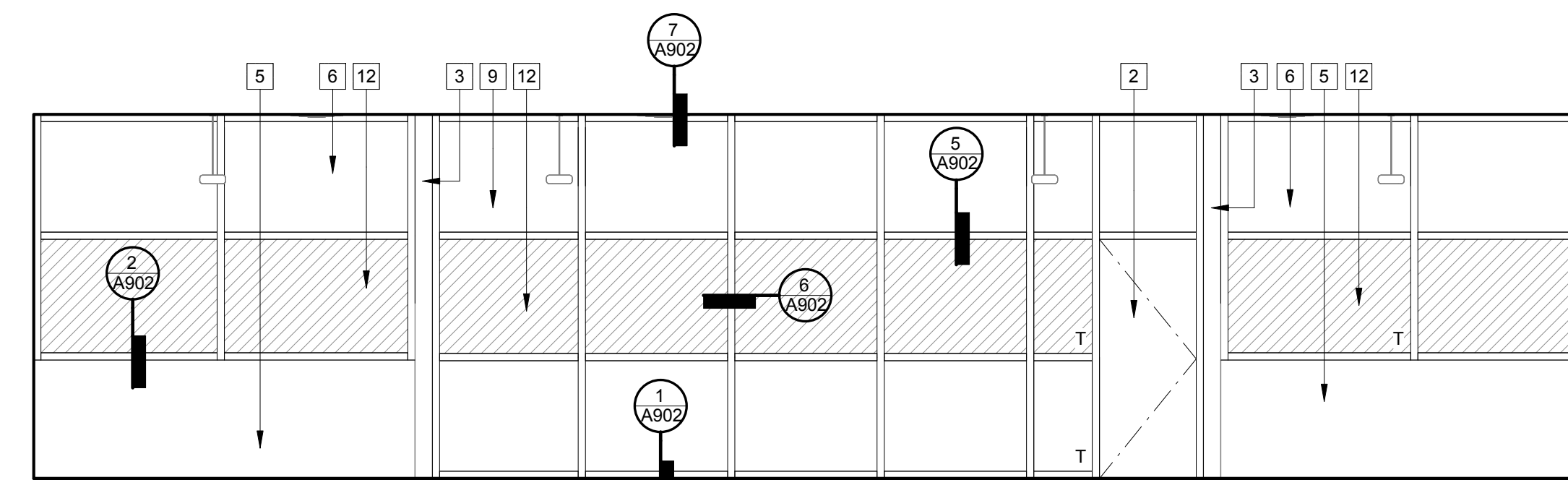
8 316 Study Room\_North  
1/4" = 1'-0"



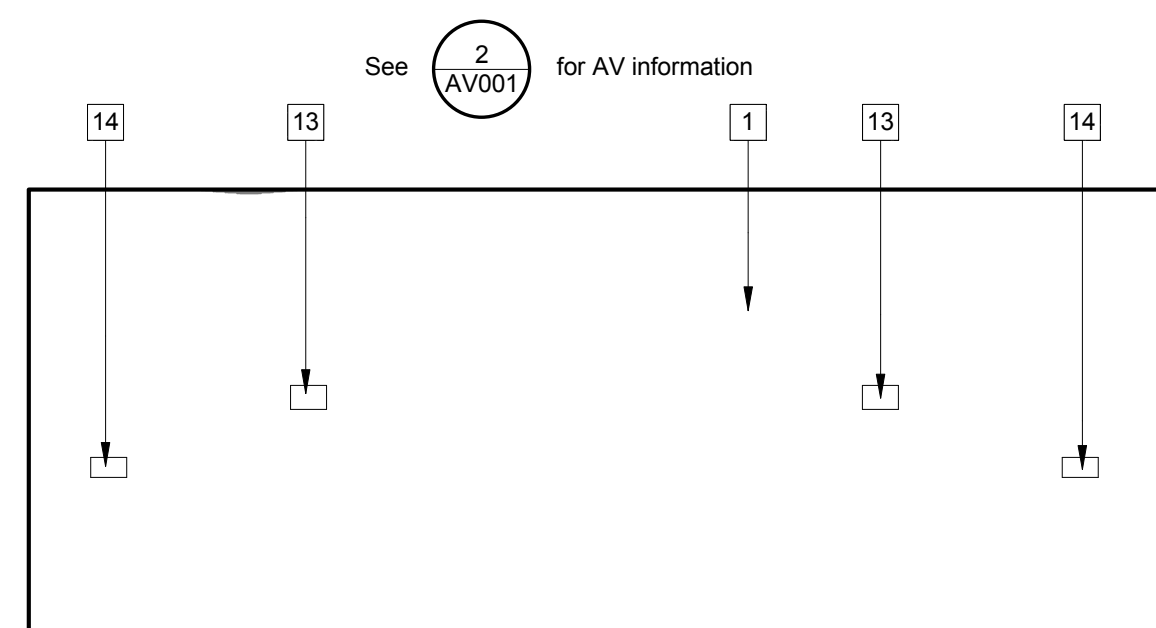
7 316 Study Room\_East  
1/4" = 1'-0"



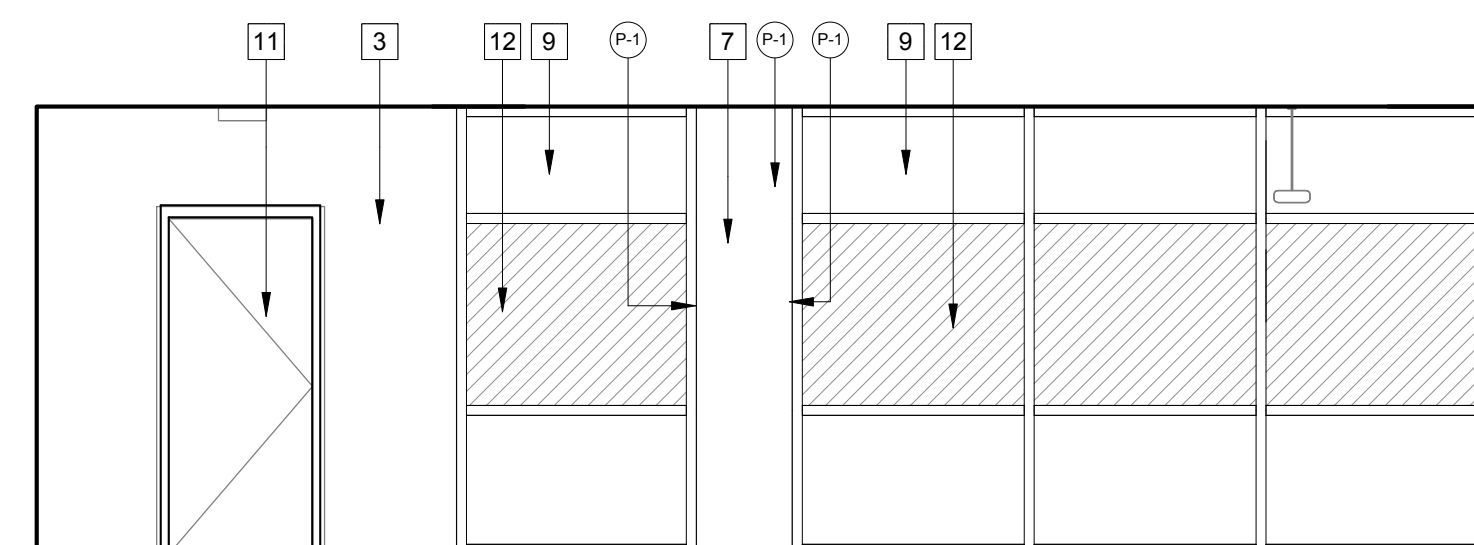
12 316 Study Room\_South  
1/4" = 1'-0"



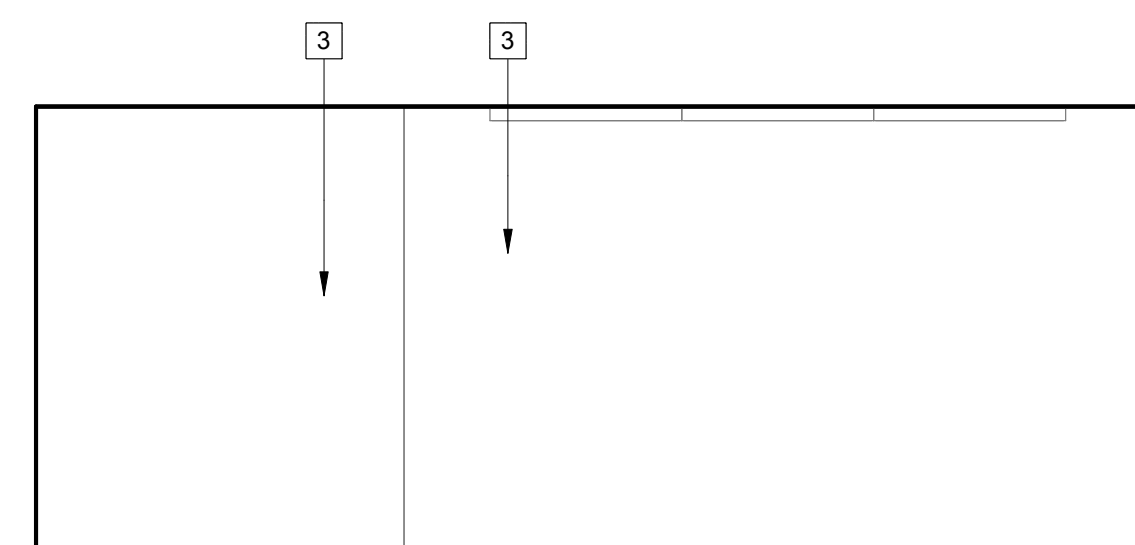
10 310 Office\_North  
1/4" = 1'-0"



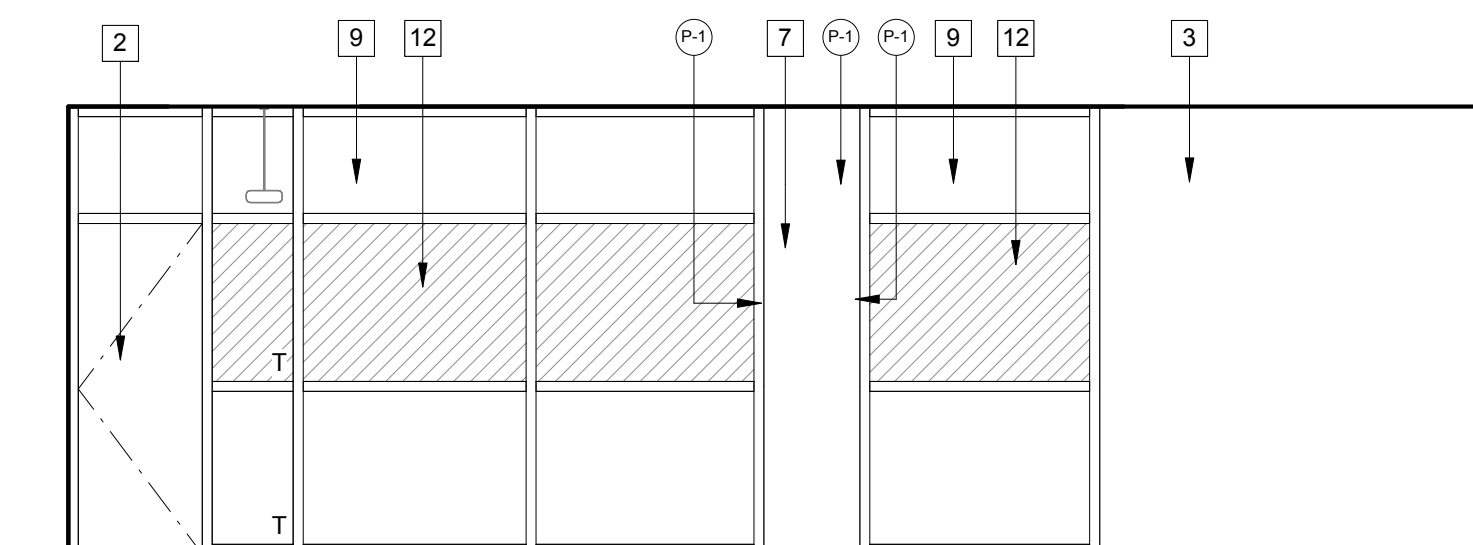
6 338 Tutoring\_West  
1/4" = 1'-0"



5 338 Tutoring\_South  
1/4" = 1'-0"

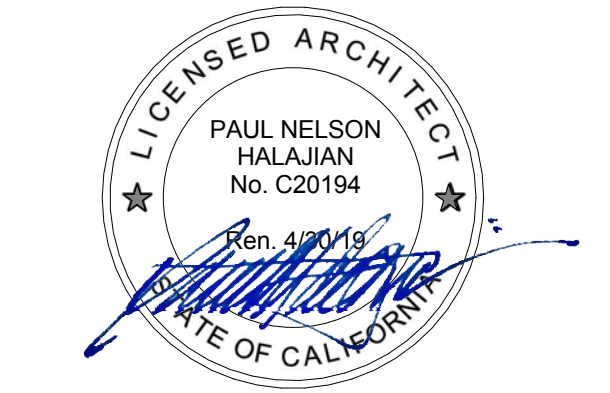


3 338 Tutoring\_East  
1/4" = 1'-0"



4 338 Tutoring\_North  
1/4" = 1'-0"

**PH**  
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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343  
**SHEET: Interior Elevations**

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:

NO.	DESCRIPTION

PROJECT NUMBER:

2018-18

SHEET NUMBER:

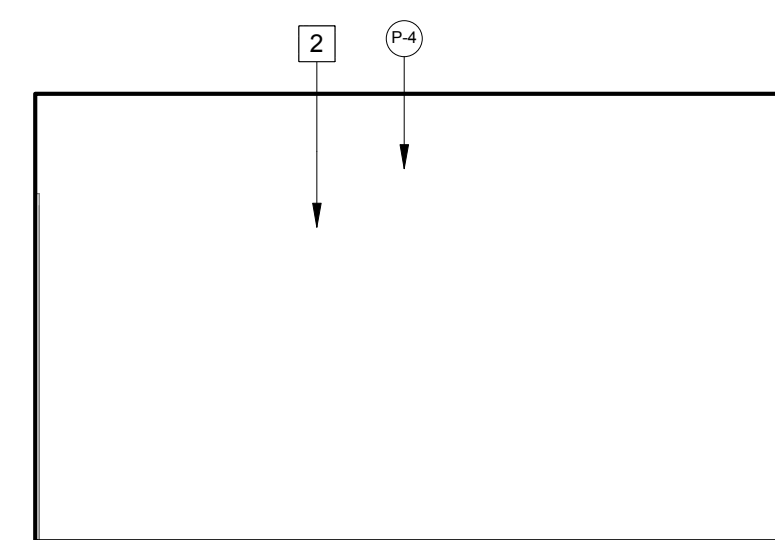
A801

**General Notes**

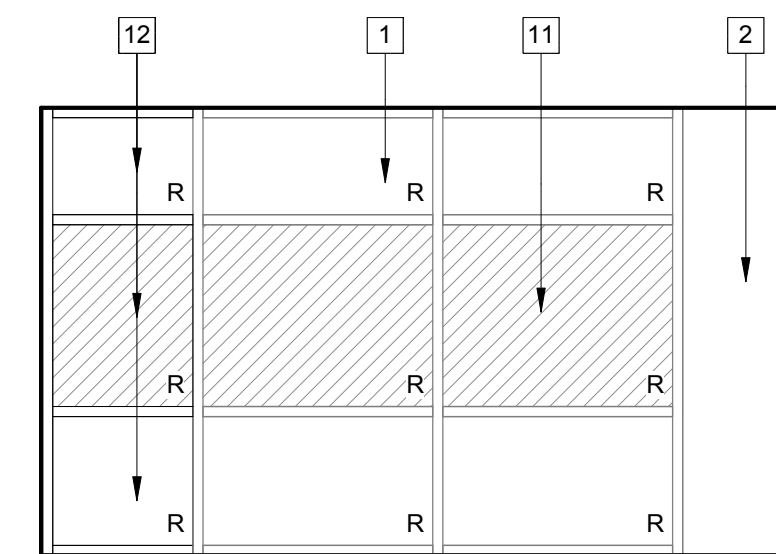
- 1) Keynotes apply to this sheet only.
- 2) See door schedule on A702 for door head, jamb and sill details, typ. u.n.o.
- 3) All items shown but not noted are to be considered (E) to remain, typ. u.n.o.
- 4) Glazing shown with label 'T' is to be tempered safety glass, typ. u.n.o.
- 5) Glazing shown with label 'R' is to be 1-hr fire rated glass, typ. u.n.o.
- 6) All paint to be P-1, typ. u.n.o. See Finish Schedule for more information.
- 7) Paint all new framed walls per Finish Schedule, typ. u.n.o.

**Keynotes**

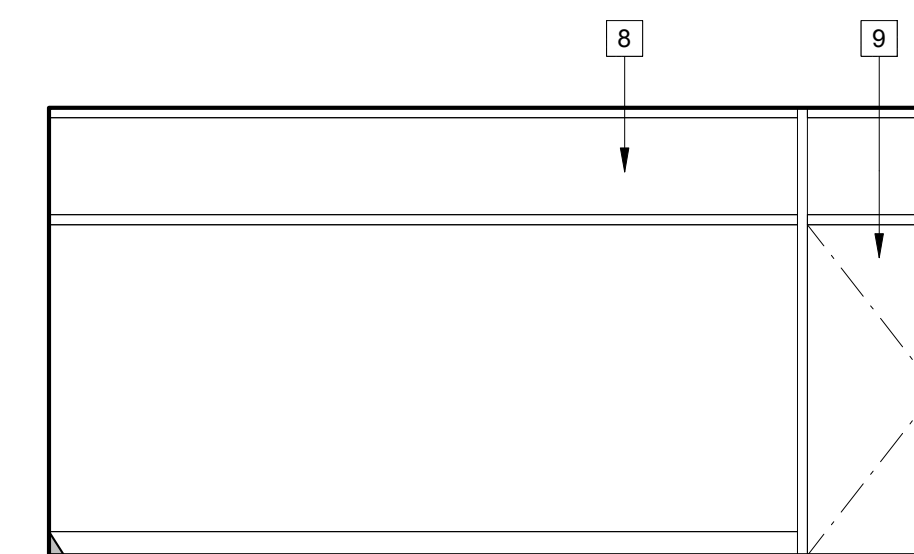
- 1 (E) Full height storefront wall to remain, typ.
- 2 (E) wall to remain, typ.
- 3 New framed wall, typ.
- 4 Pendant light fixture, per forthcoming Electrical drawings.
- 5 Touchscreen control for projector screen, OFCI. Provide power per forthcoming Electrical drawings. Verify exact location with University prior to installation.
- 6 Markerboard, by others
- 7 Wall-mounted TV, OFCI. Refer to forthcoming Electrical drawings. Provide backing per 3/A901, verify location with University prior to installation.
- 8 New demountable partition, by others to match existing
- 9 Door within demountable partition, by others
- 10 (E) Column to remain, typ.
- 11 Apply decorative window film on outside surface of glazing, typ. OFCI
- 12 Infill storefront panel with glazing where door was removed, typ.



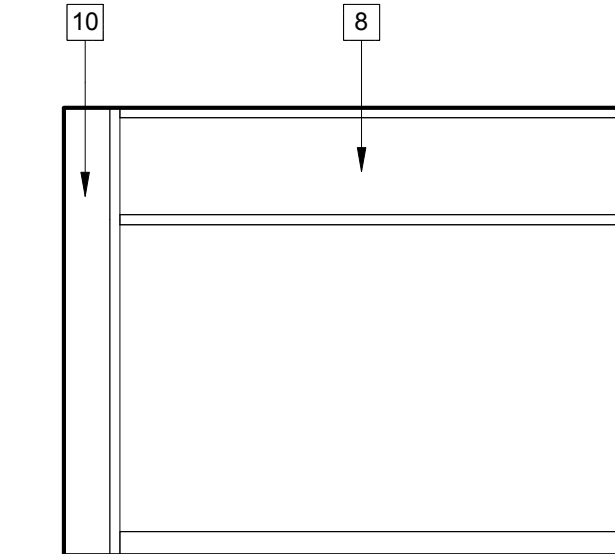
12 344 Office West  
1/4" = 1'-0"



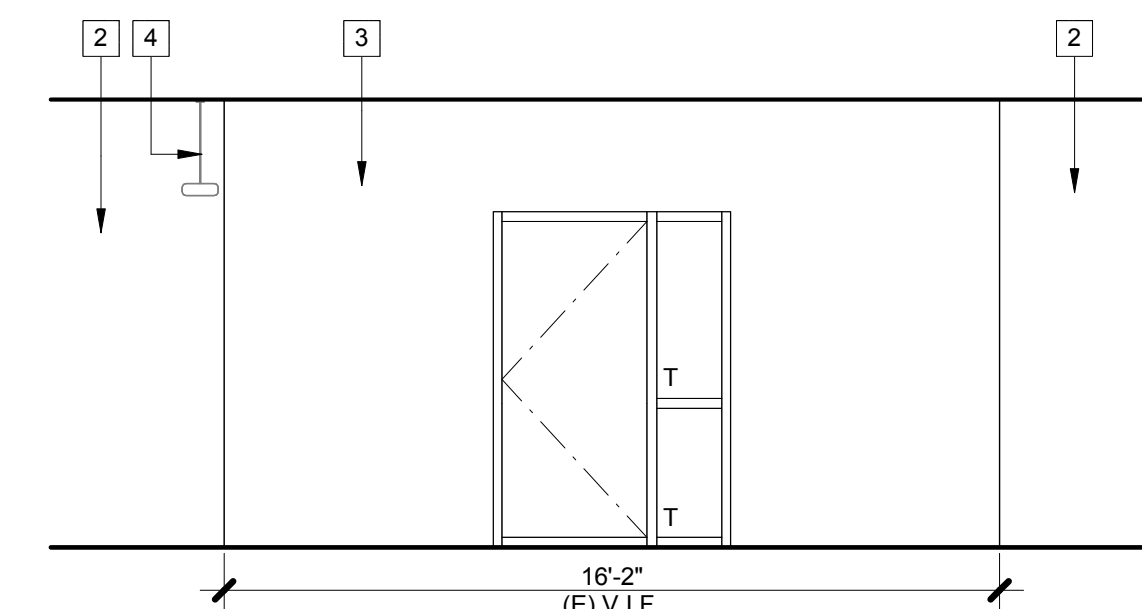
11 344 Office East  
1/4" = 1'-0"



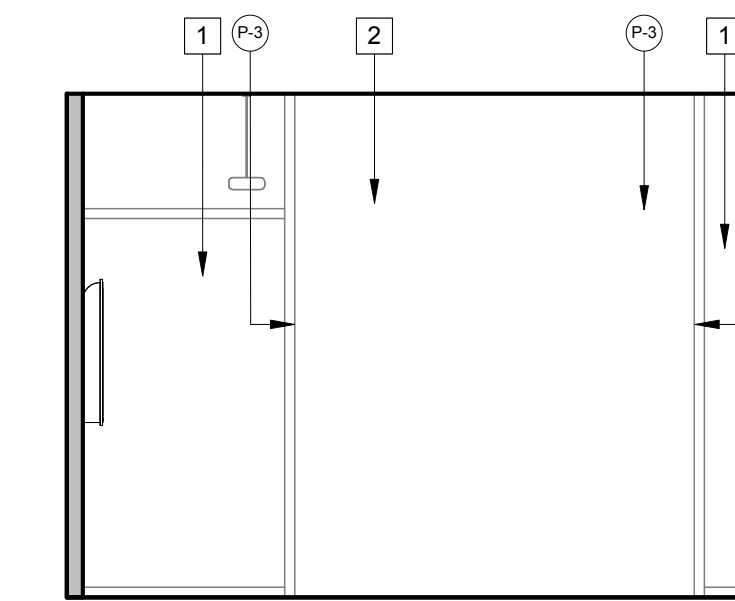
10 323B Huddle Room South  
1/4" = 1'-0"



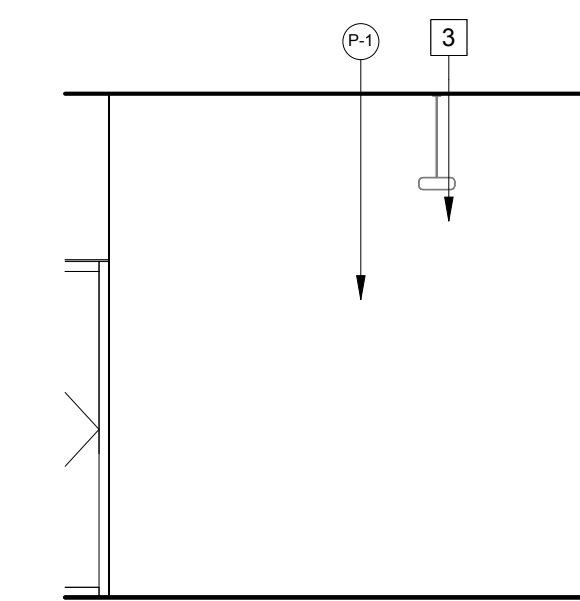
9 323B Huddle Room East  
1/4" = 1'-0"



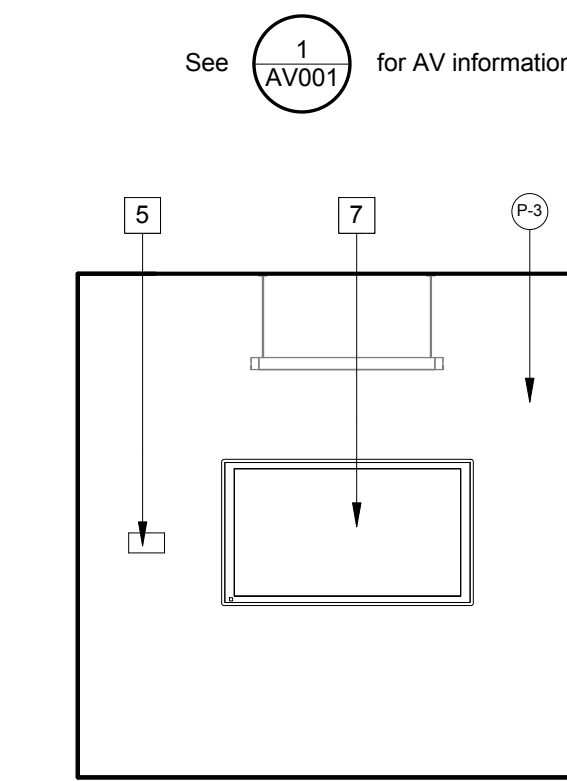
8 311 Office South  
1/4" = 1'-0"



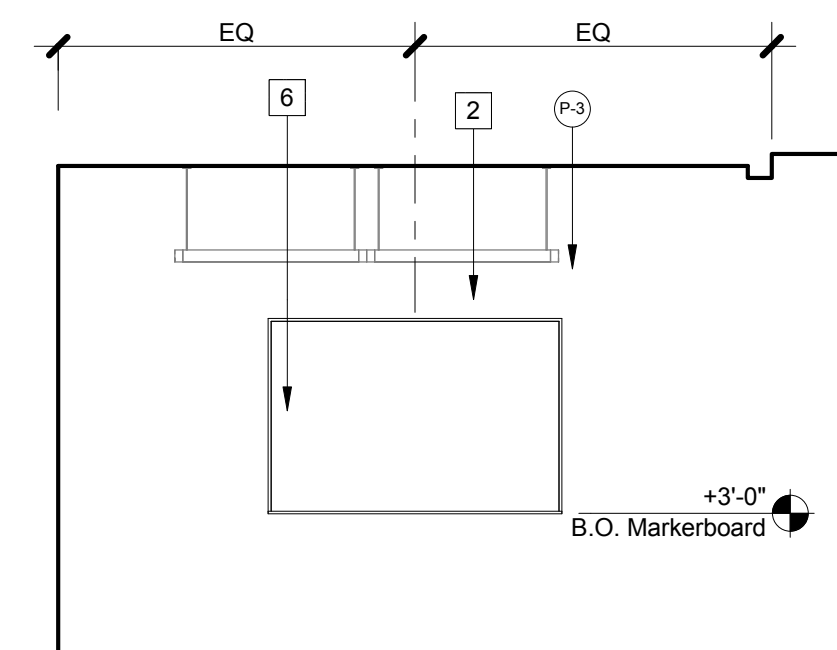
7 330B TV Area South  
1/4" = 1'-0"



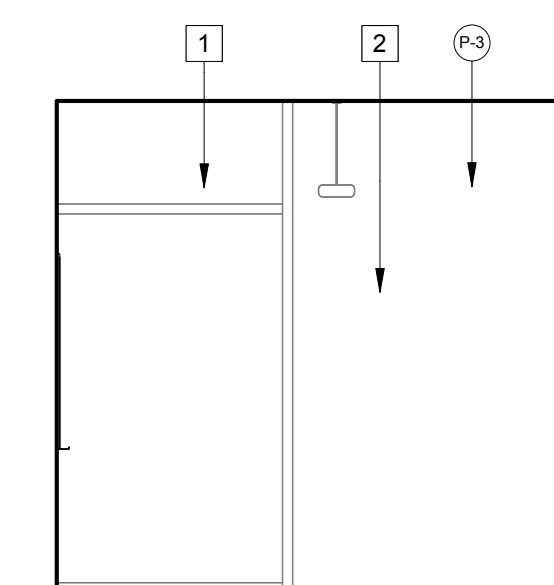
6 330B TV Area North  
1/4" = 1'-0"



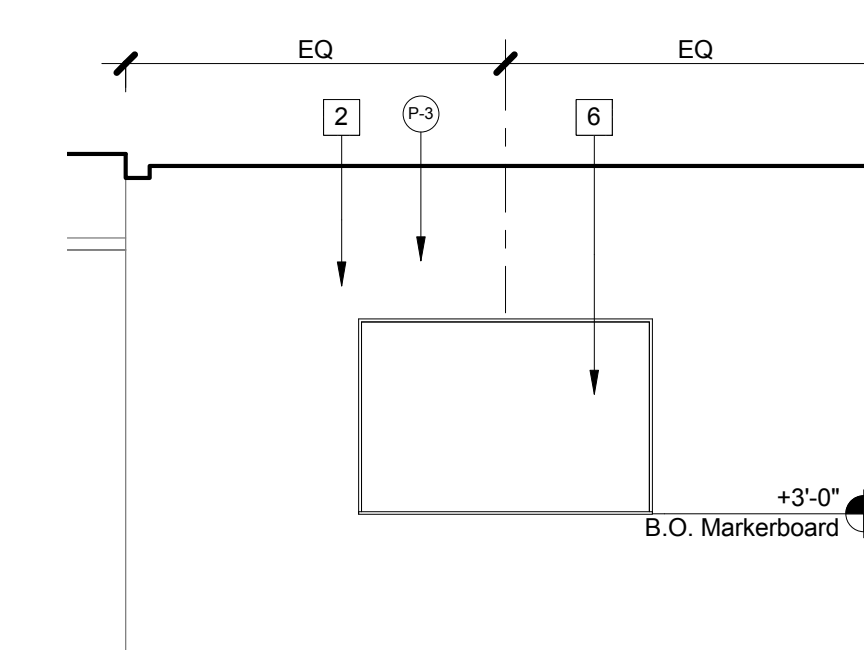
5 330B TV Area East  
1/4" = 1'-0"



3 330A Breakout West  
1/4" = 1'-0"

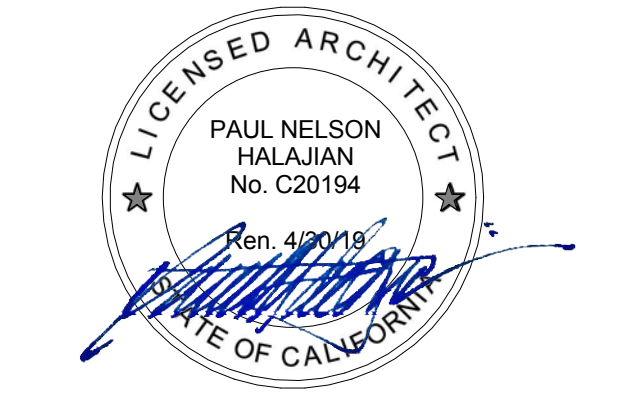


2 330A Breakout South  
1/4" = 1'-0"



1 330A Breakout East  
1/4" = 1'-0"

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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343  
**SHEET: Interior Elevations**

**DRAWING SET INFORMATION:**

07.10.2018 Bid Set

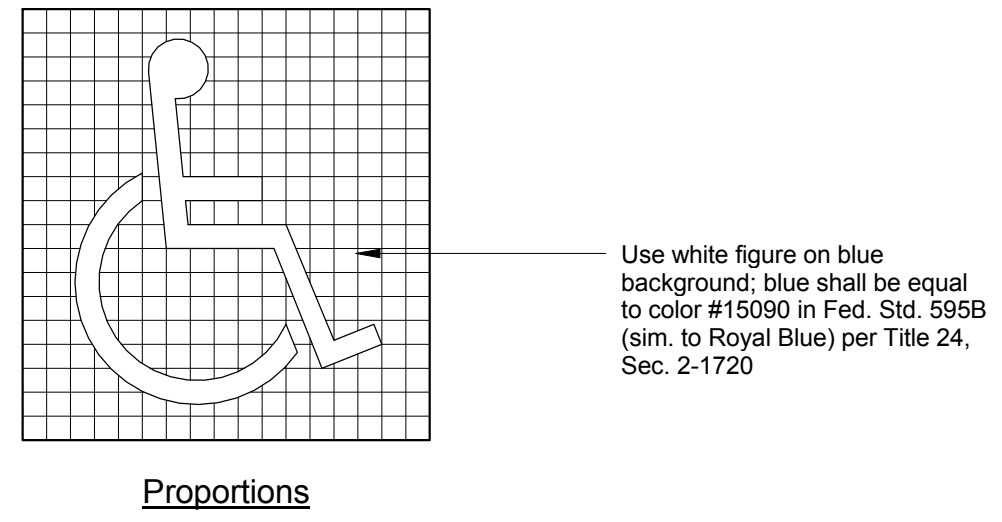
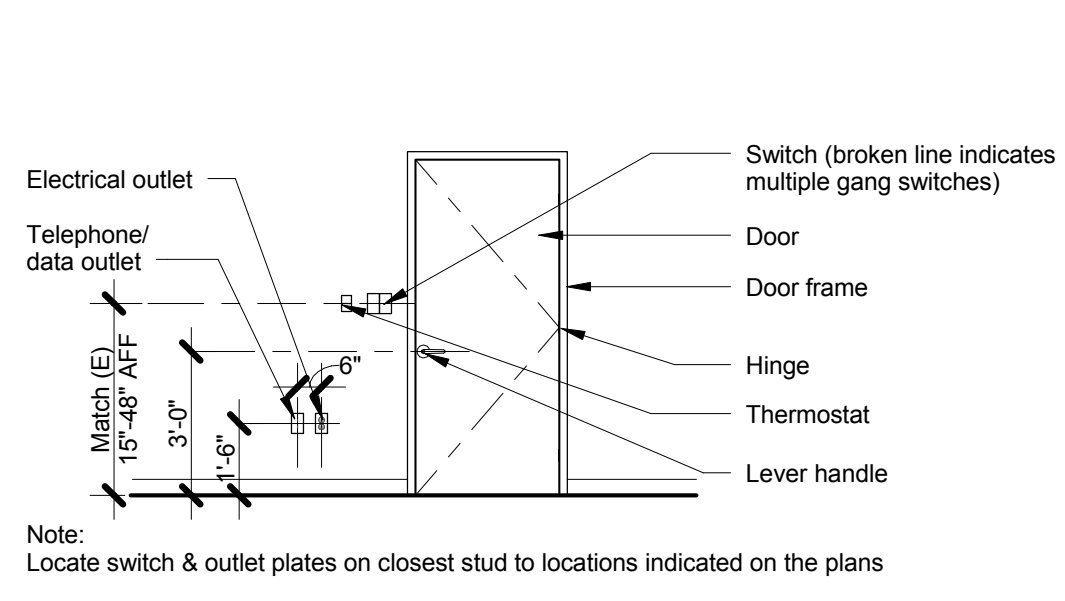
**REVISIONS:**

NO.	DESCRIPTION

**PROJECT NUMBER:**  
2018-18

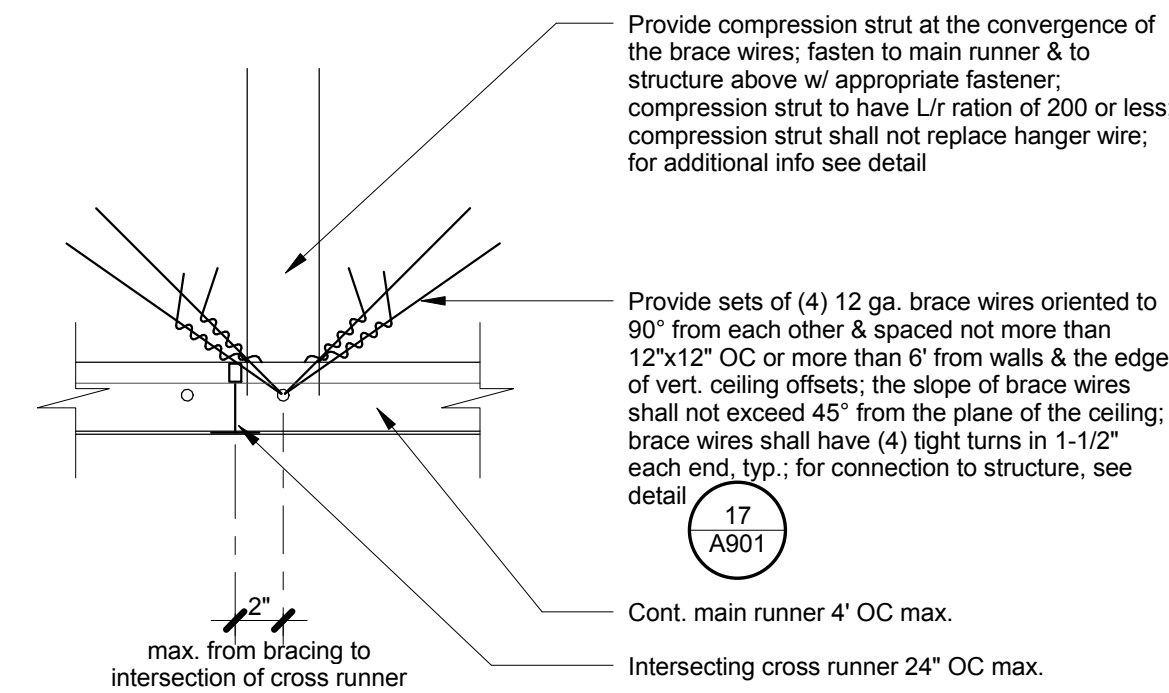
**SHEET NUMBER:**  
A802



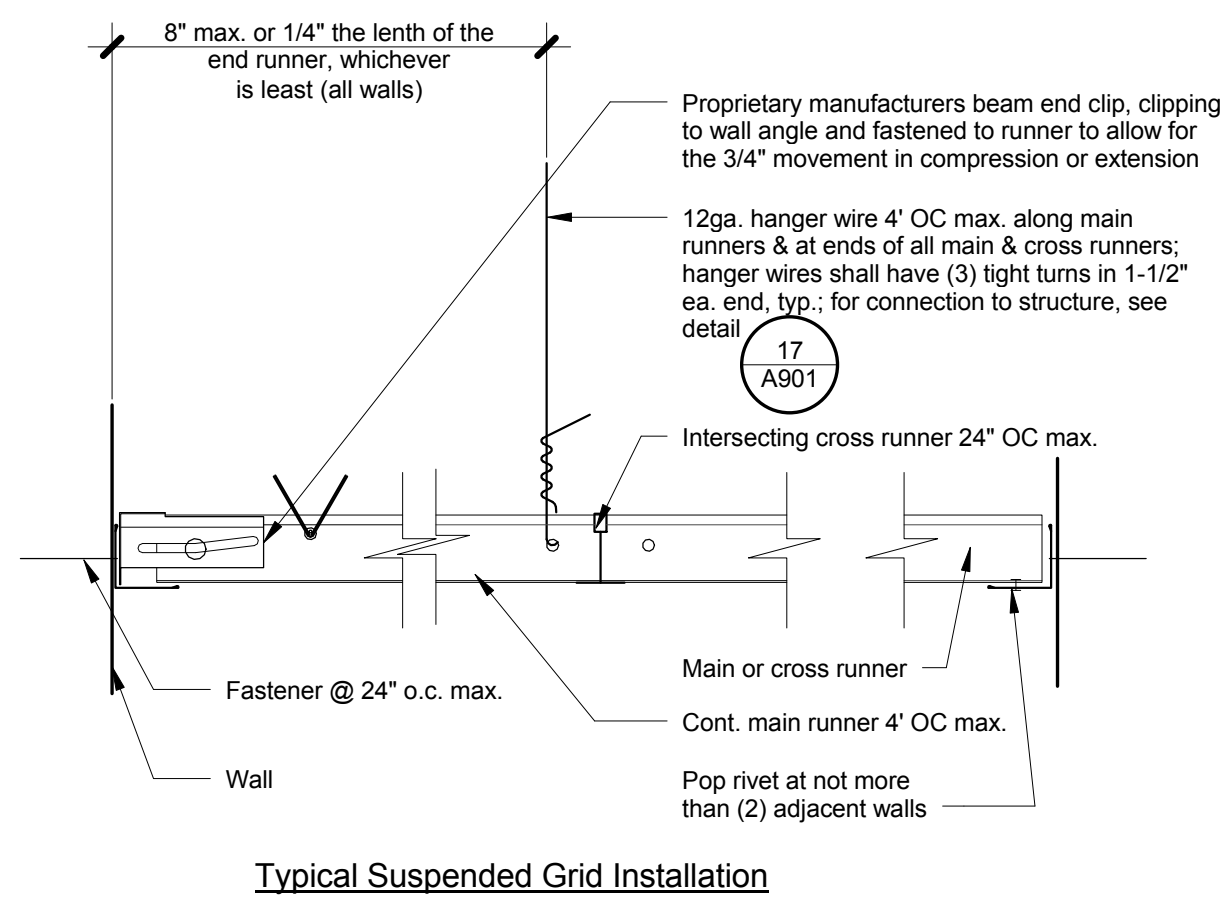


20 Typ. Mounting Heights at Doors  
1/4" = 1'-0"

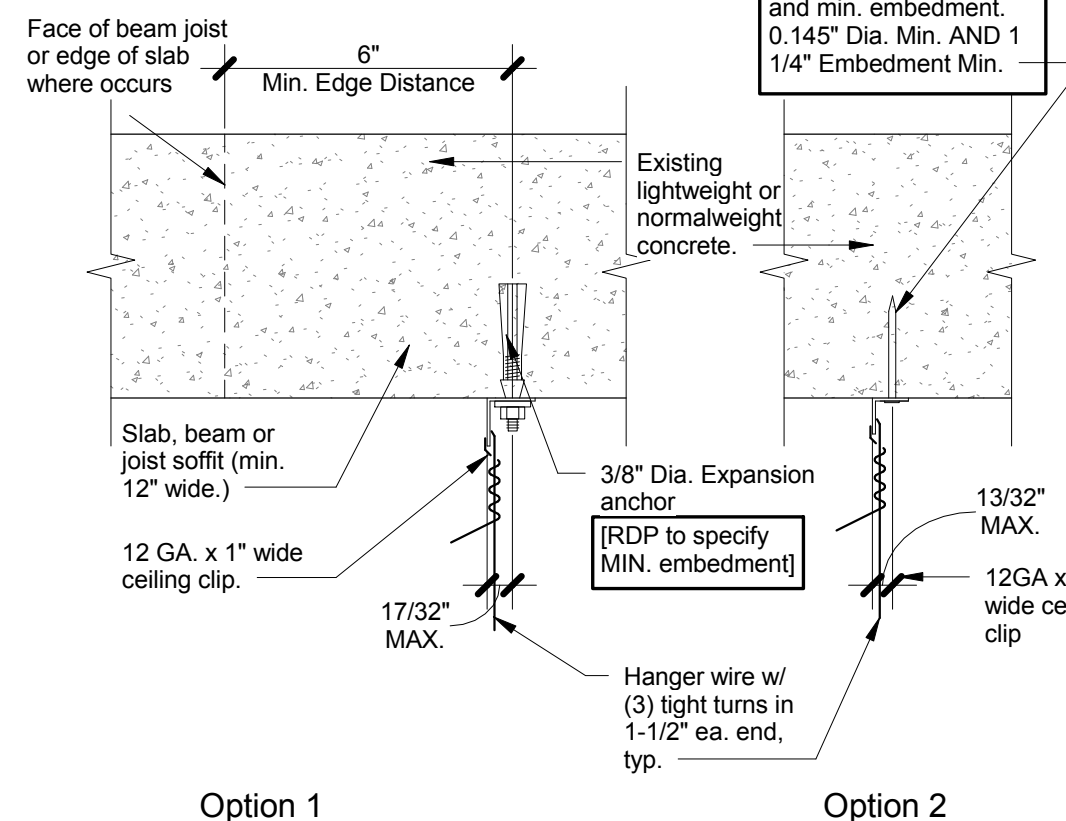
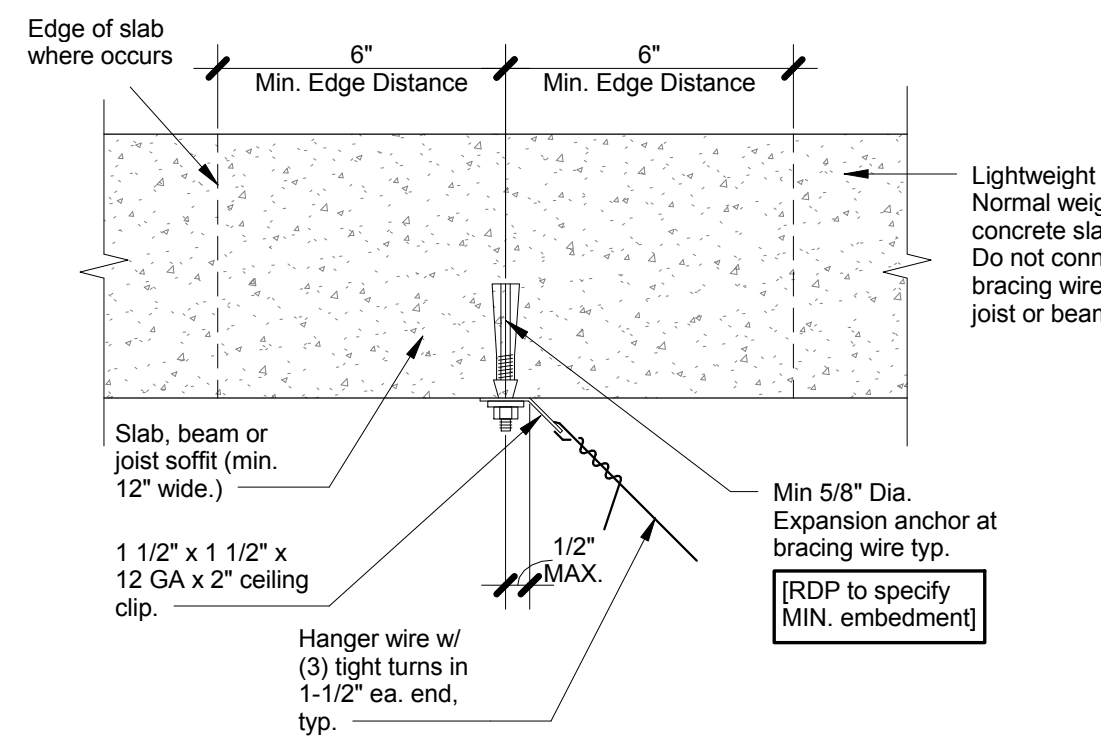
16 ISA Symbol  
1/2" = 1'-0"



- Typ. Suspended Ceiling Notes:**
- Suspended grid ceilings shall be installed in accordance with section CBC 803.9, 1613.1 and ASCE 7 and comply with ASTM C635, C636, and CISC Category 'D' requirements.
  - Suspended ceiling system shall have ASTM heavy duty classification.
  - Provide trapeze or other supplementary support members at obstructions to main hanger spacing. Provide additional hangers, struts, or braces as required. At all ceiling breaks, soffits, or discontinuous areas. Hanger wires that are more than 1 in 6 out of plumb are to have counter-sloping wires.
  - Hanger & brace wires shall be installed w/out kinks or splices.
  - Hanger & brace wire anchors to the structure shall be installed in such a manner that they align as closely as possible with the direction of the forces acting on the wire.
  - Hanger & brace wires shall be at least 6" from all unbraced ducts, pipes, conduits, etc.
  - All light fixtures shall be attached to the ceiling grid members to resist a horizontal force equal to the weight of the fixture.
  - Flush or recessed light fixtures, air terminals, or other ceiling fixtures weighing less than 50lbs may be supported directly on the runners of heavy duty grid systems. In addition, they shall have a min. of (2) 12ga. slack safety wires attached to the fixture at diagonal corners which are anchored to the structure above. 4"x4" & larger fixtures shall have slack safety wires at each corner.
  - Flush or recessed light fixtures, air terminals, or other ceiling fixtures weighing 50lbs or more, must be independently supported by not less than (4) 12ga. wires attached to the fixture & the structure above. The (4) 12ga. wires including their attachment to the structure above, must be capable of supporting 4 times the weight of the fixture.
  - Surface mounted fixtures shall be supported by at least (2) positive devices which surround the ceiling runner & which are each supported from the structure above by a 12ga. wire, provide additional supports when fixtures are 8' long or longer.
  - Support pendant mounted fixtures directly from the structure above w/ 12ga. hanger wires or cables passing through each pendant hanger & capable of supporting 4 times the weight of the fixture.
  - Ceiling perimeter wall. Main and cross runners shall be attached to wall angles at (2) adjacent walls with ends at opposite walls free to move horizontally a minimum of 3/4".
  - Non-fire rated suspended ceiling system of 144 sq. ft. if less surrounded by construction braced to the structure above do not require bracing assemblies.
  - A seismic joint or full wall shall separate the ceiling into areas not to exceed 2500 sq. ft.
  - Penetration through the ceiling for sprinkler heads and similar devices that are not integrally tied to the ceiling system in the lateral direction shall have a 2 inch oversize hole through the ceiling panel to allow free movement of 1 inch in all horizontal directions. alternately, swing joints may be provided per ASCE 7-05, Section 13.5.6.2.2(e).
  - Positive bracing shall be provided at all ceiling level changes.
  - Expansion joints shall be provided in the ceiling at intersections of corridors and at junctions of corridors with lobbies or similar areas.
  - Special inspection required for suspended ceiling systems.

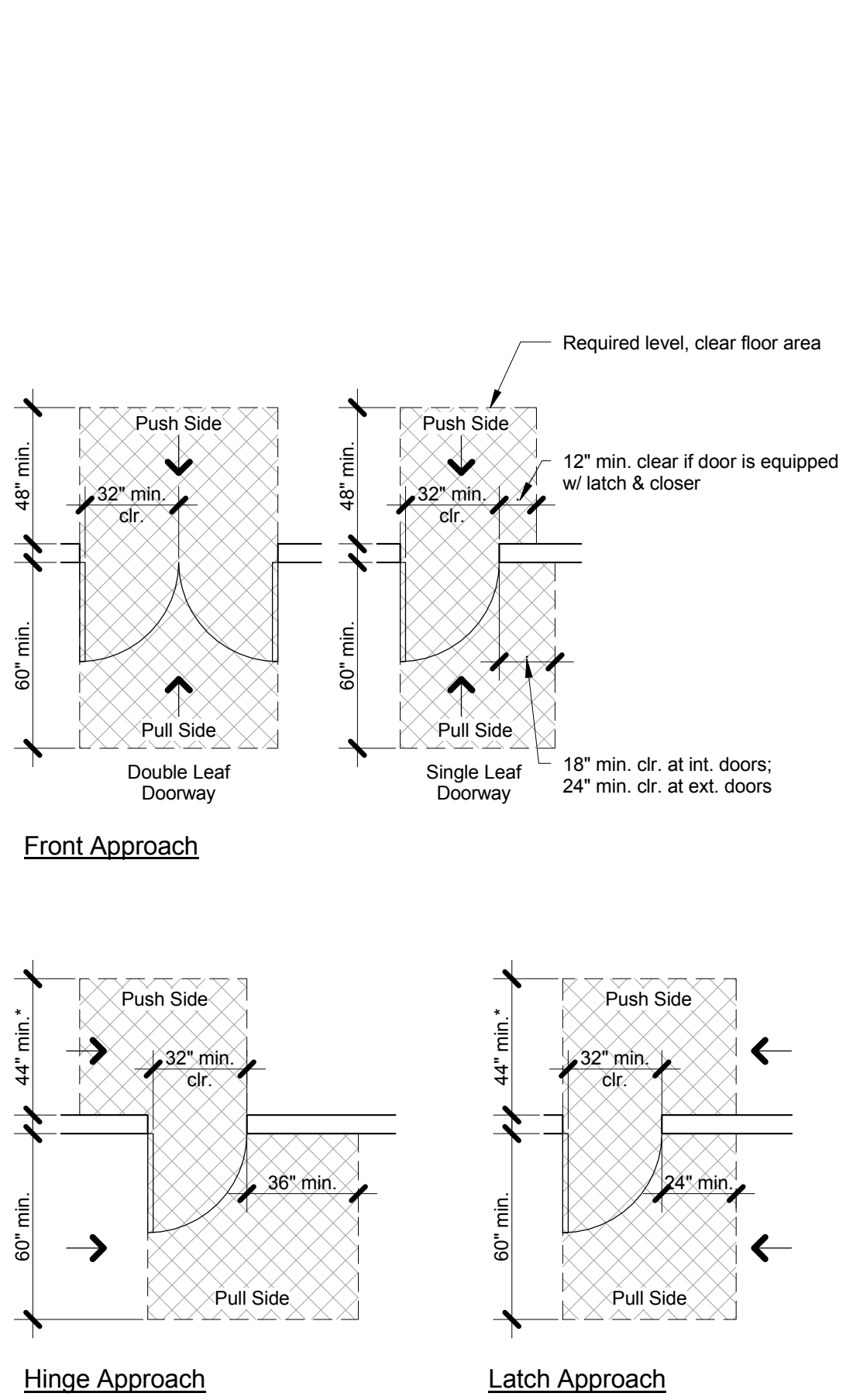


18 Suspended Panel Ceiling  
1 1/2" = 1'-0"

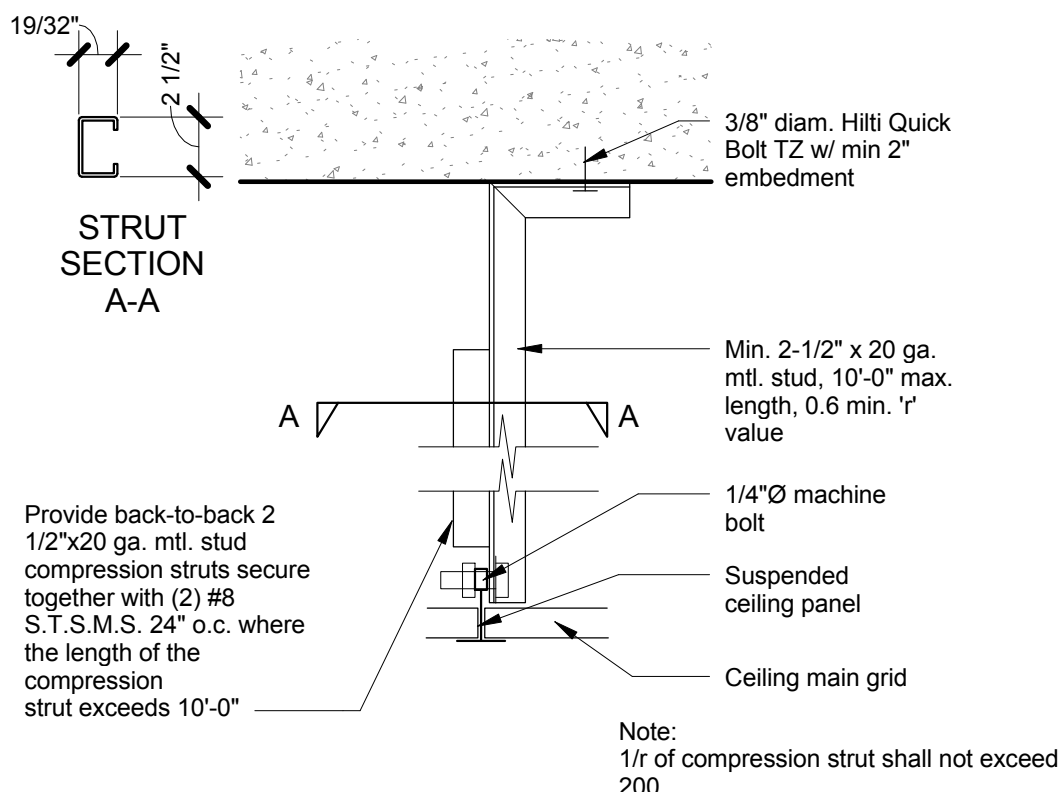


17 Ceiling Support Wire to Structure  
3" = 1'-0"

Hanger Wire

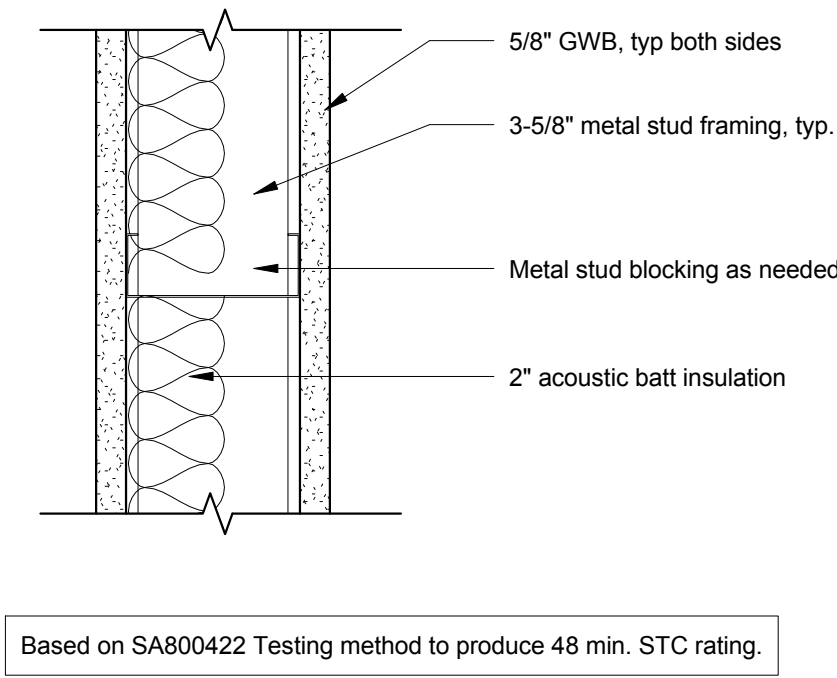


11 Door Clearance Requirements  
1/4" = 1'-0"

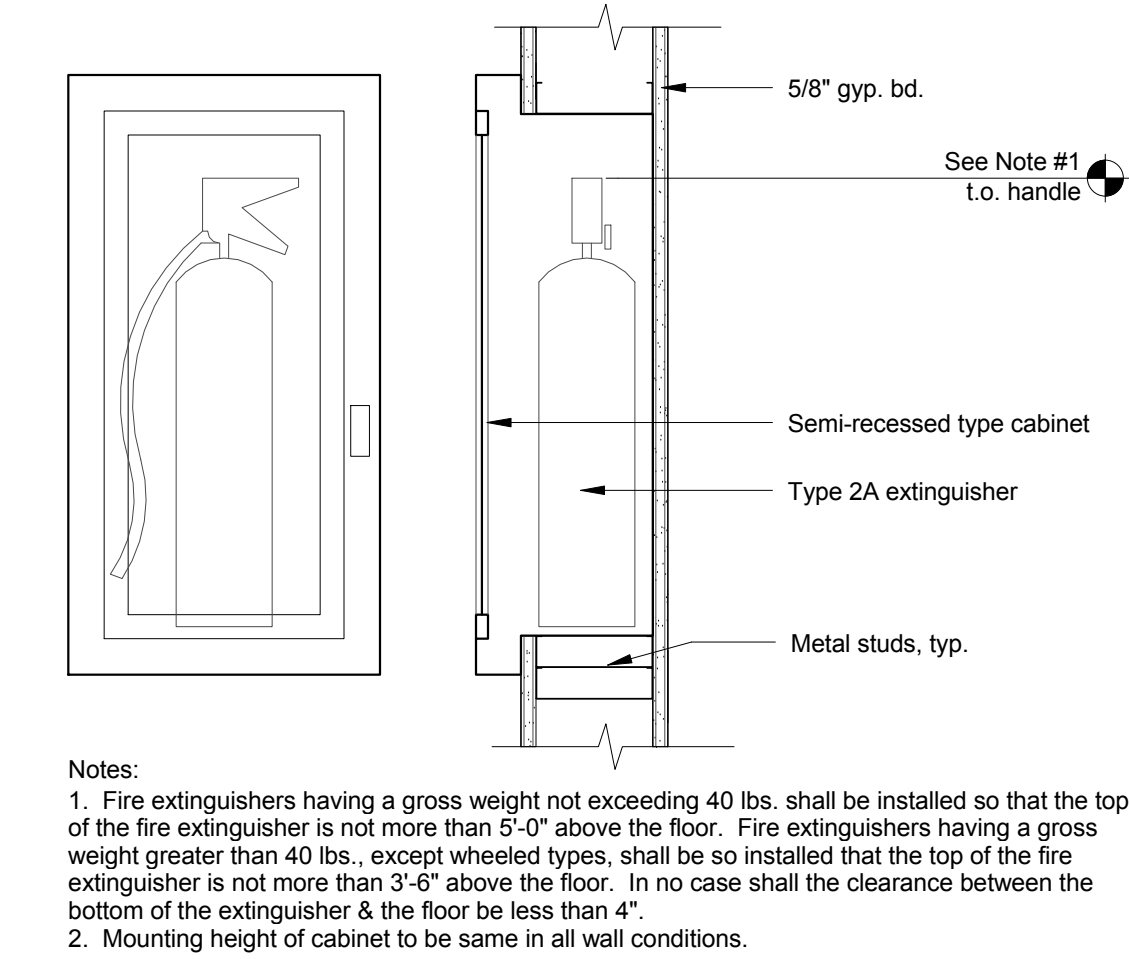


10 Compression Strut  
1 1/2" = 1'-0"

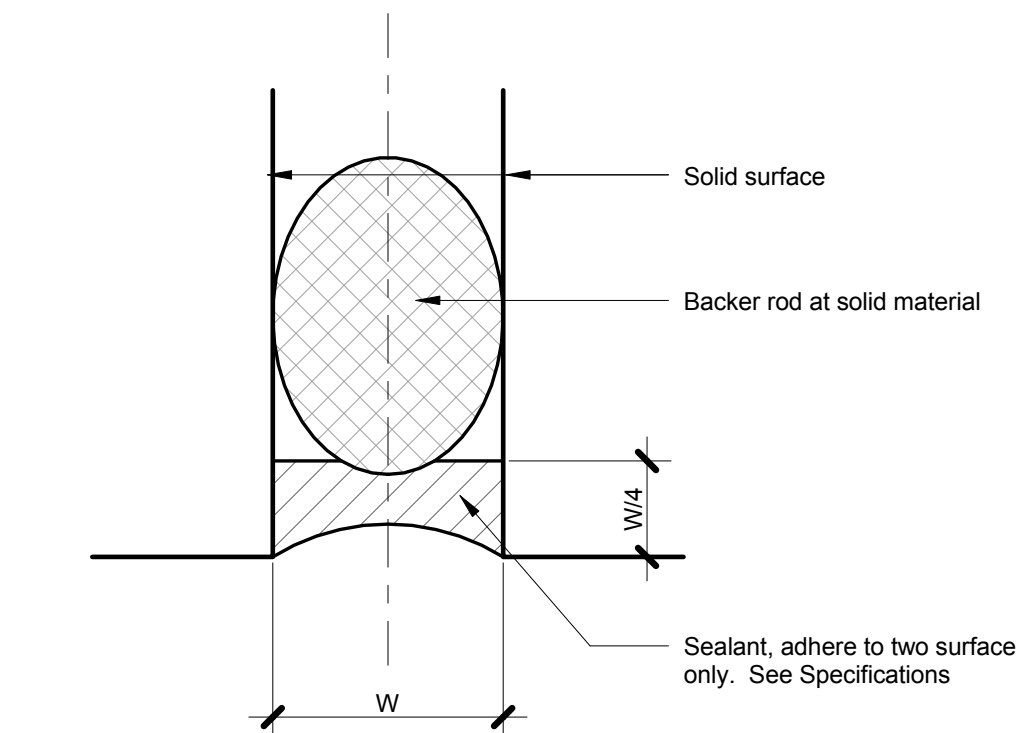
9 Framed Wall Attachment to Column  
3" = 1'-0"



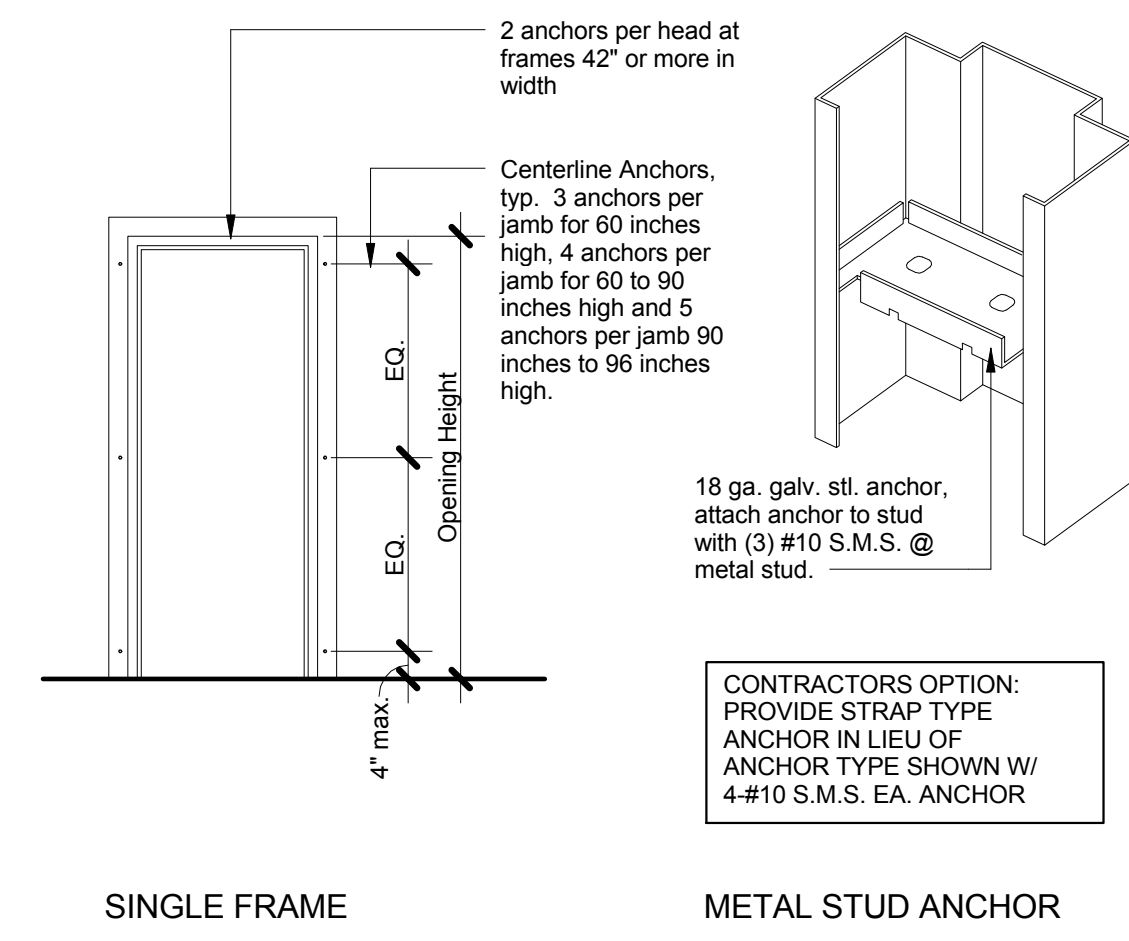
8 Framed Wall Construction  
3" = 1'-0"



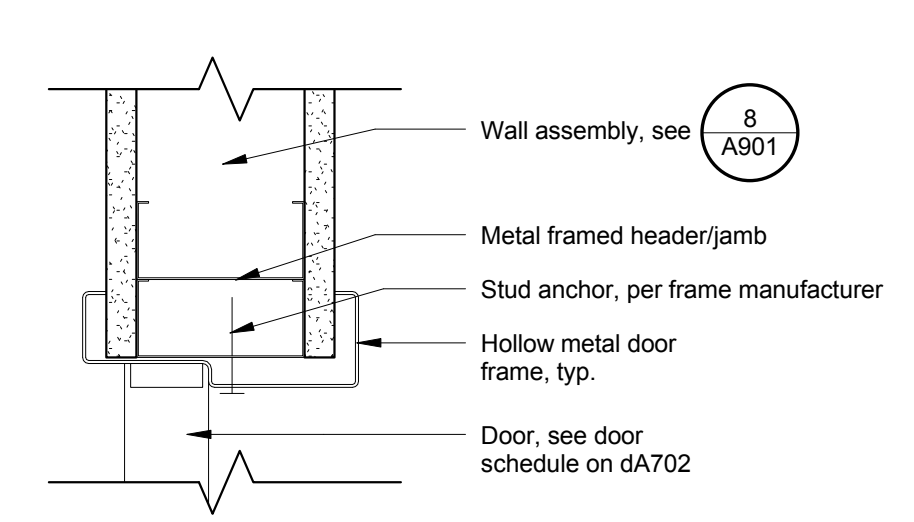
7 Fire Extinguisher Cabinet (Semi-Recessed)  
1 1/2" = 1'-0"



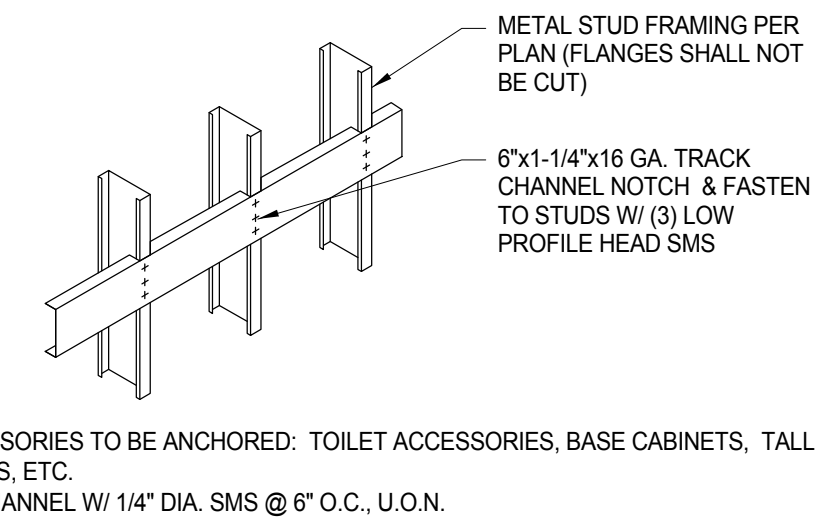
6 Typical Sealant Joint  
1/2" = 1'-0"



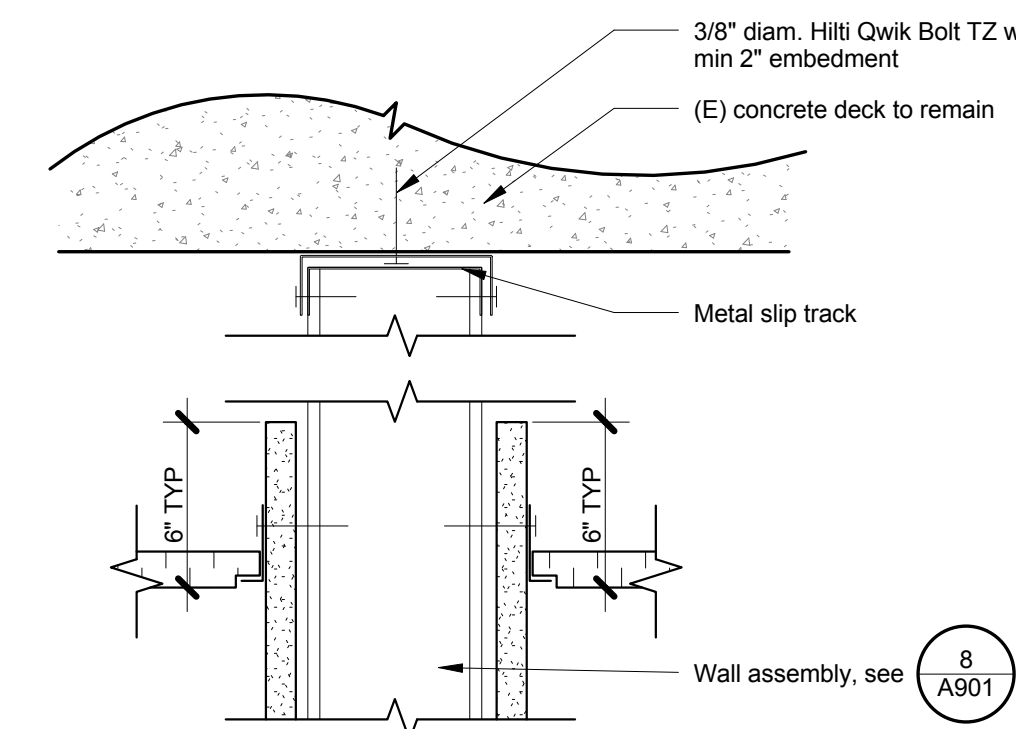
5 HM Door Frame Anchor @ Metal Studs  
1 1/2" = 1'-0"



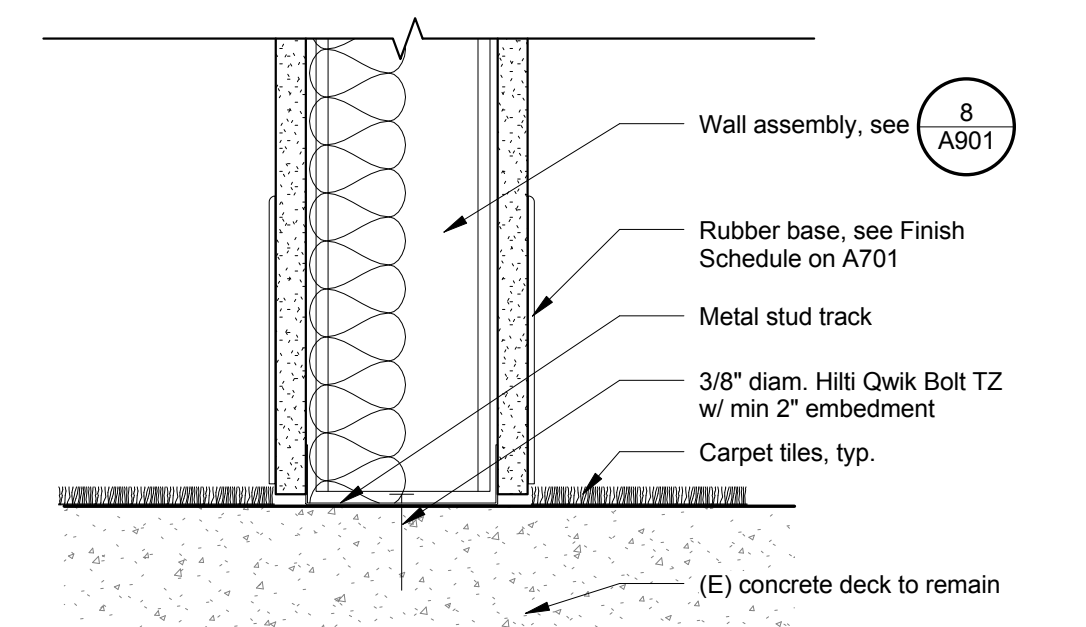
4 HM Door Frame (Head, Jamb SIM)  
3" = 1'-0"



3 Typical Backing at Metal Stud Partition  
1 1/2" = 1'-0"



2 Stud Wall Anchoring (Top)  
3" = 1'-0"



1 Stud Wall Anchoring (Bottom)  
3" = 1'-0"

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PROJECT:  
**UC Merced Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343

SHEET: Details

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:

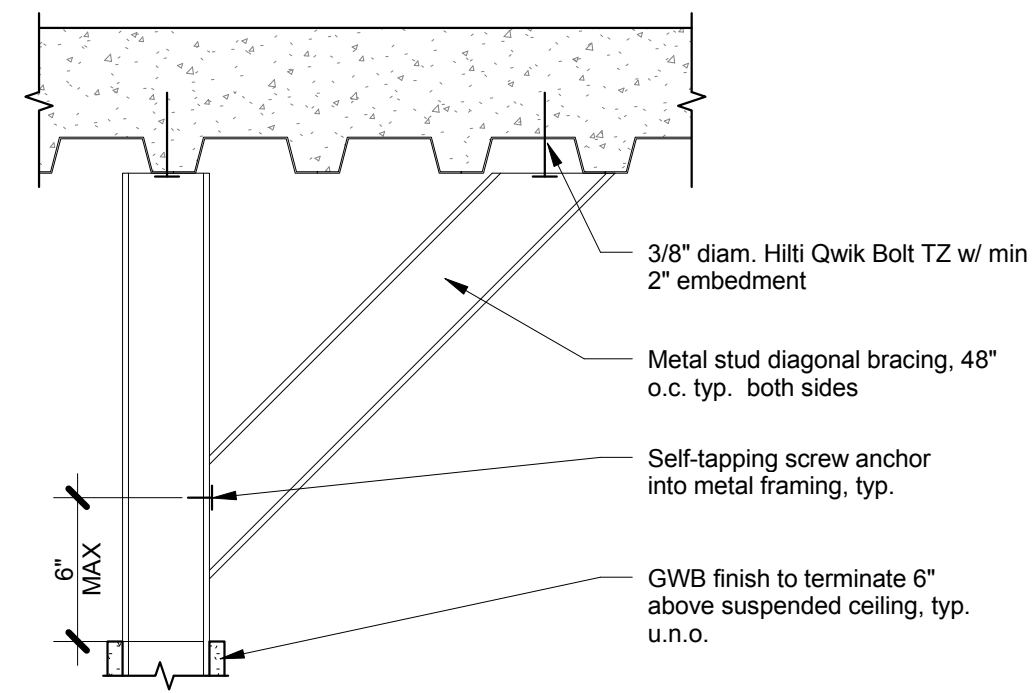
NO.	DESCRIPTION

PROJECT NUMBER:

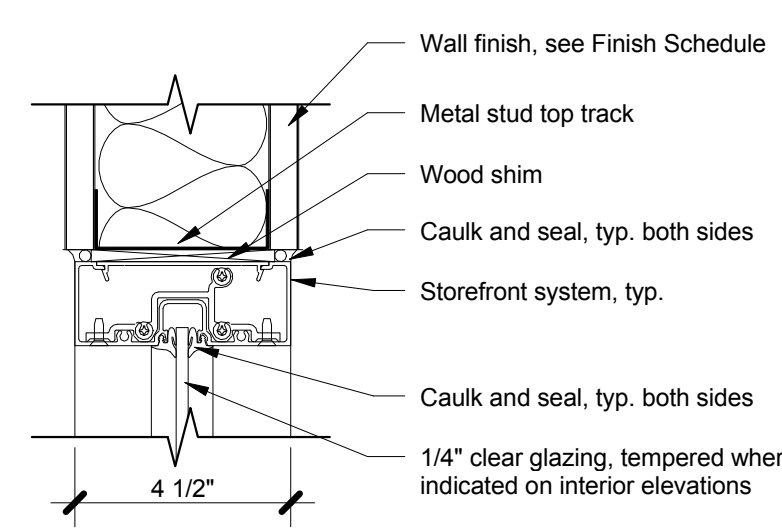
2018-18

SHEET NUMBER:

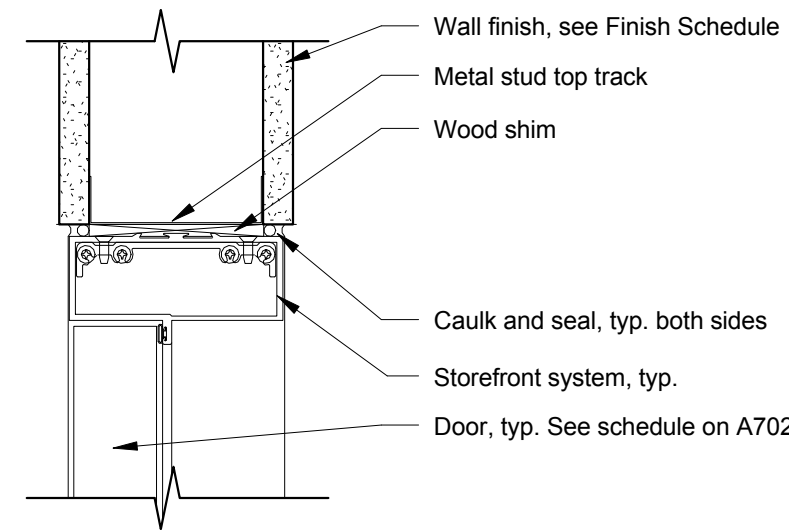
A901



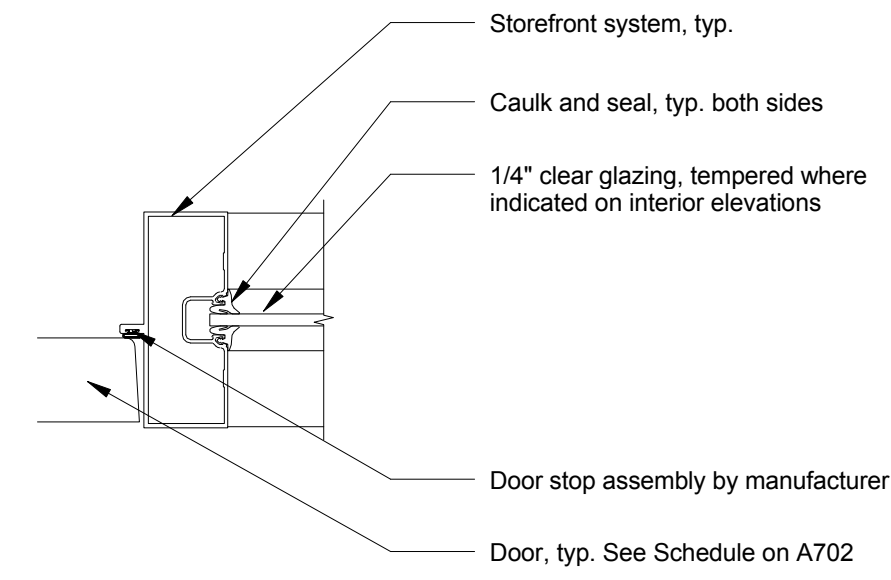
20 Diagonal Bracing  
1 1/2" = 1'-0"



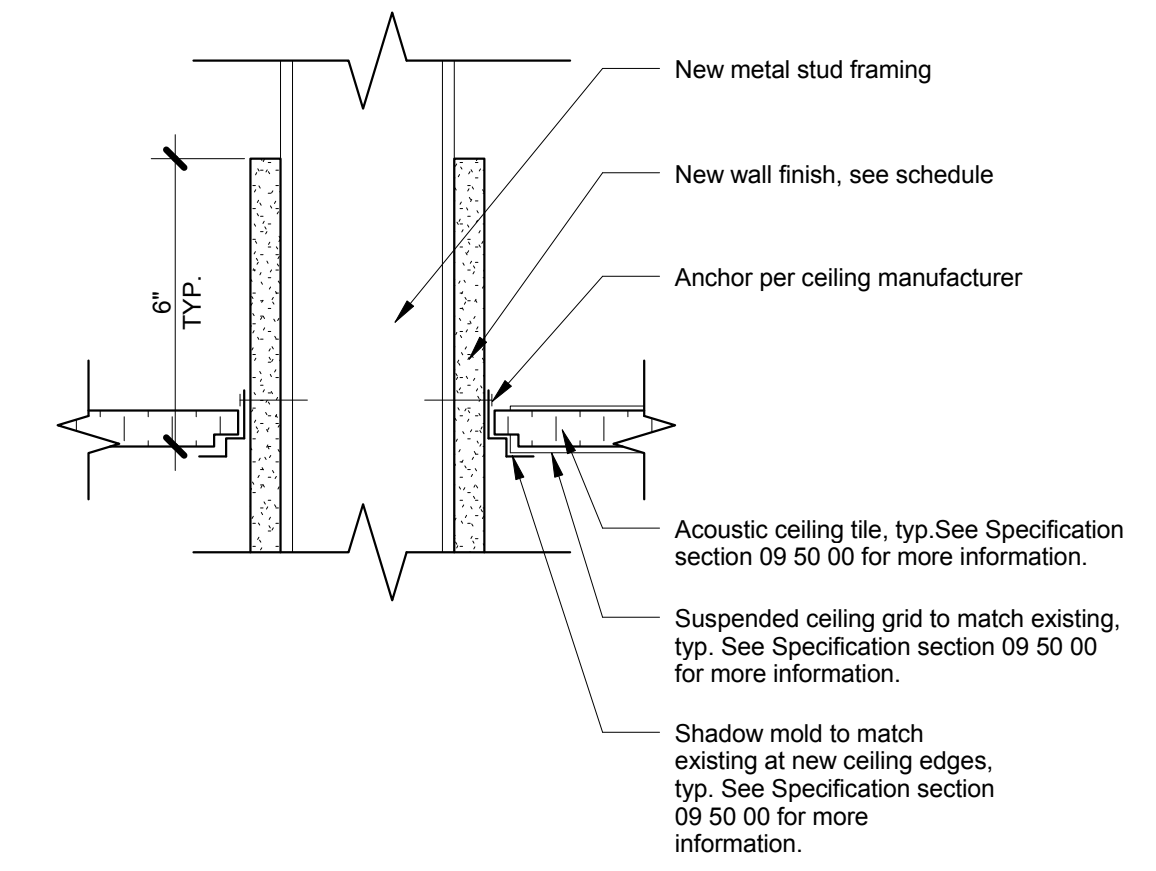
16 Storefront Transom Head  
3" = 1'-0"



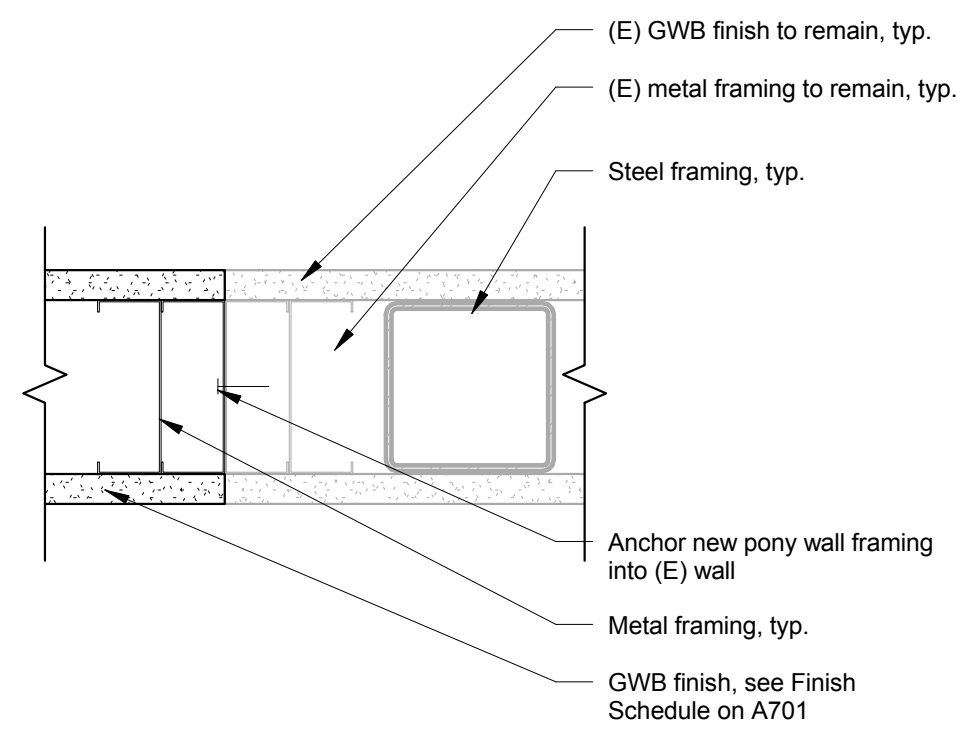
12 Storefront Door Head  
3" = 1'-0"



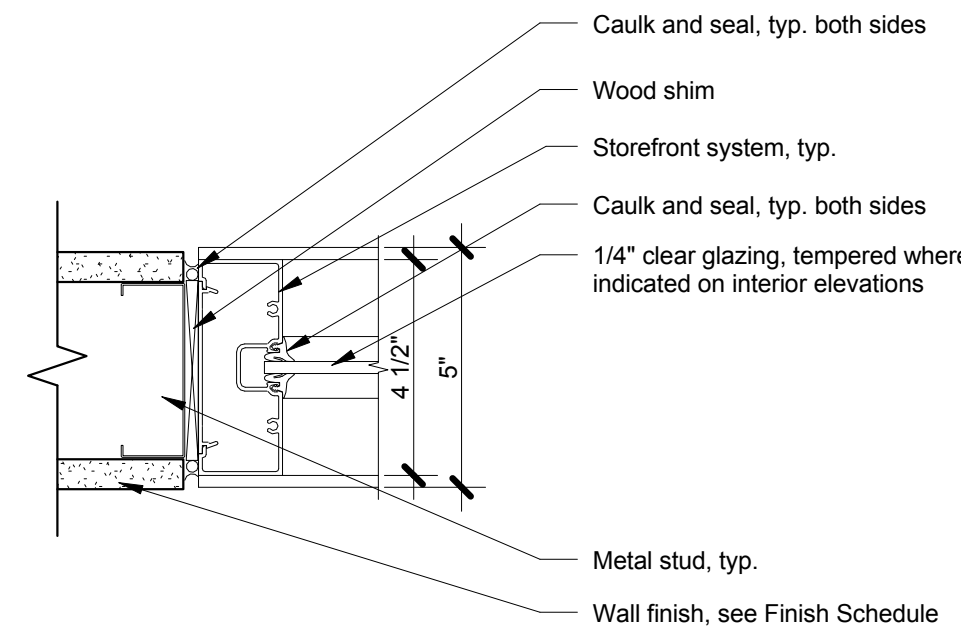
8 Storefront Door Jamb (@ Sidelight)  
3" = 1'-0"



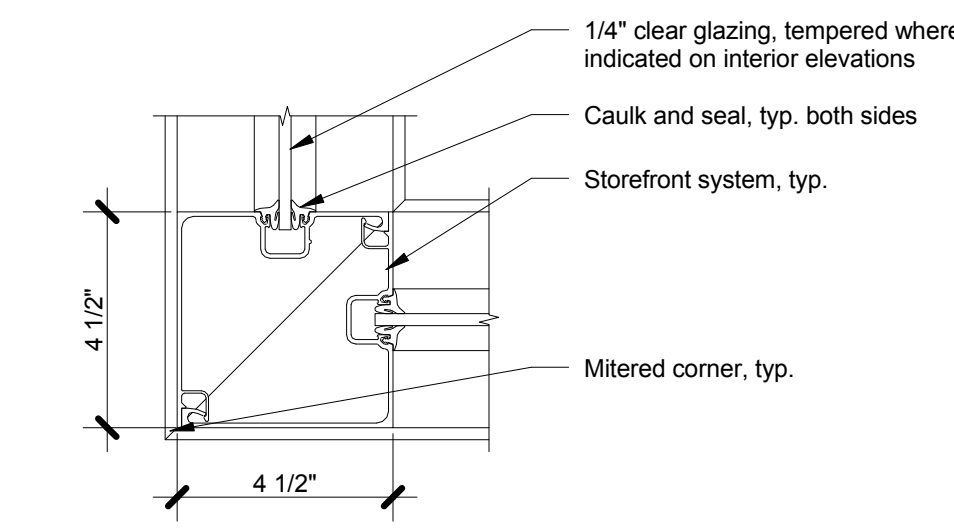
4 Ceiling Attachment to New Wall  
3" = 1'-0"



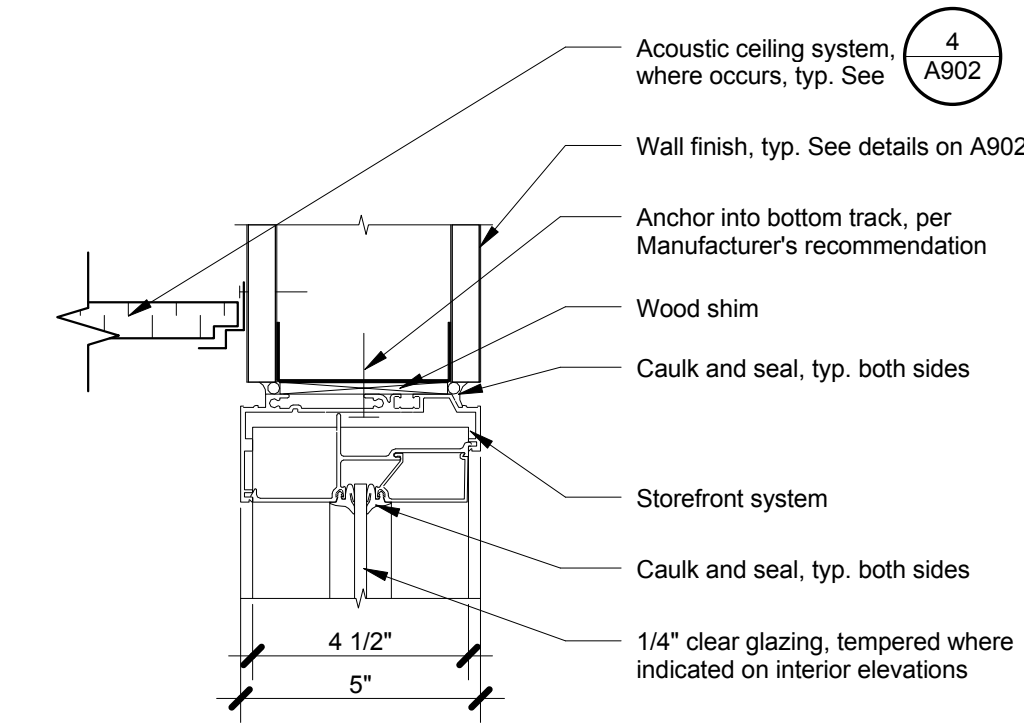
19 New Pony Wall Anchoring  
3" = 1'-0"



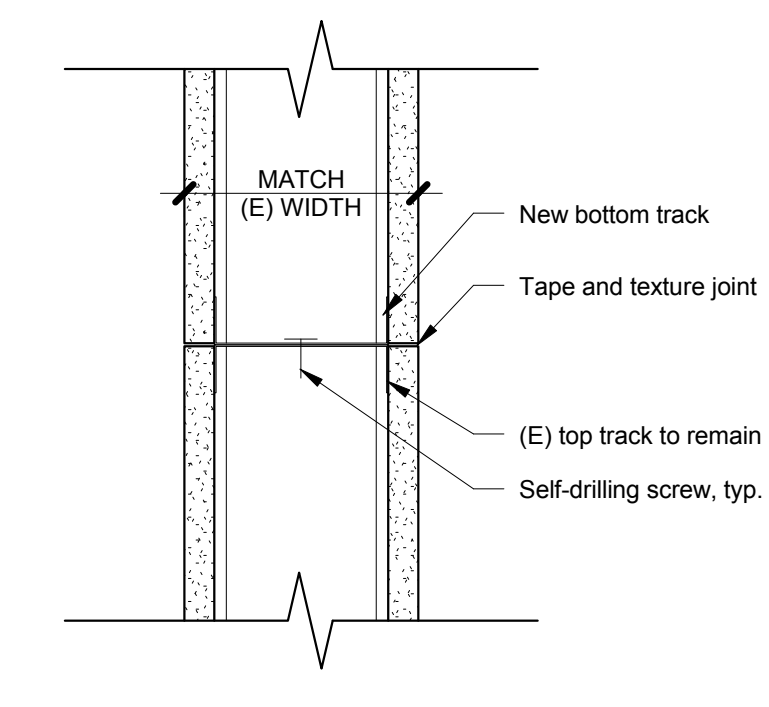
15 Storefront Window Jamb  
3" = 1'-0"



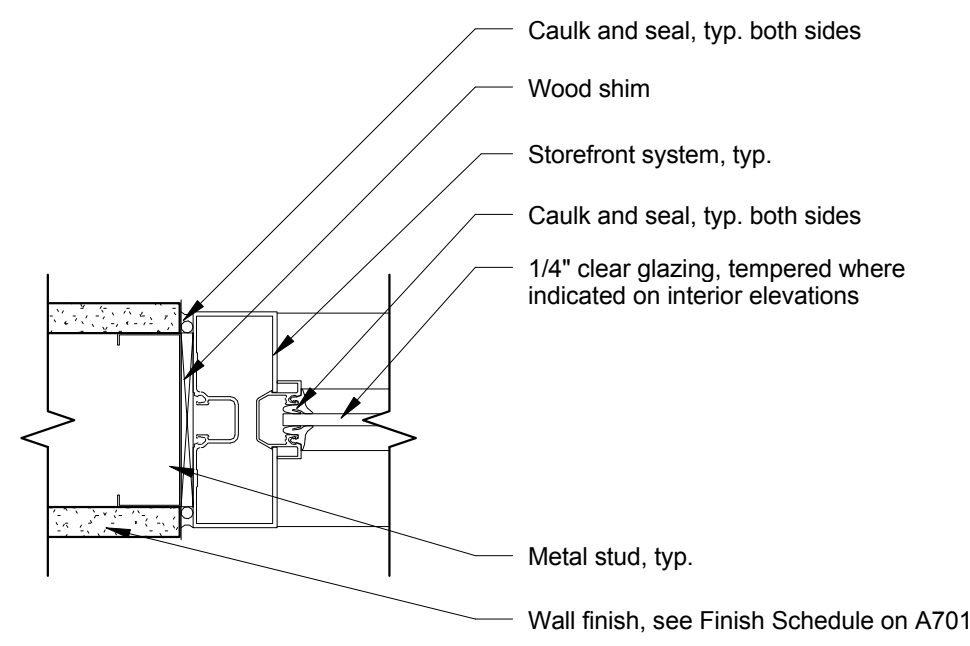
11 Storefront Corner Mullion  
3" = 1'-0"



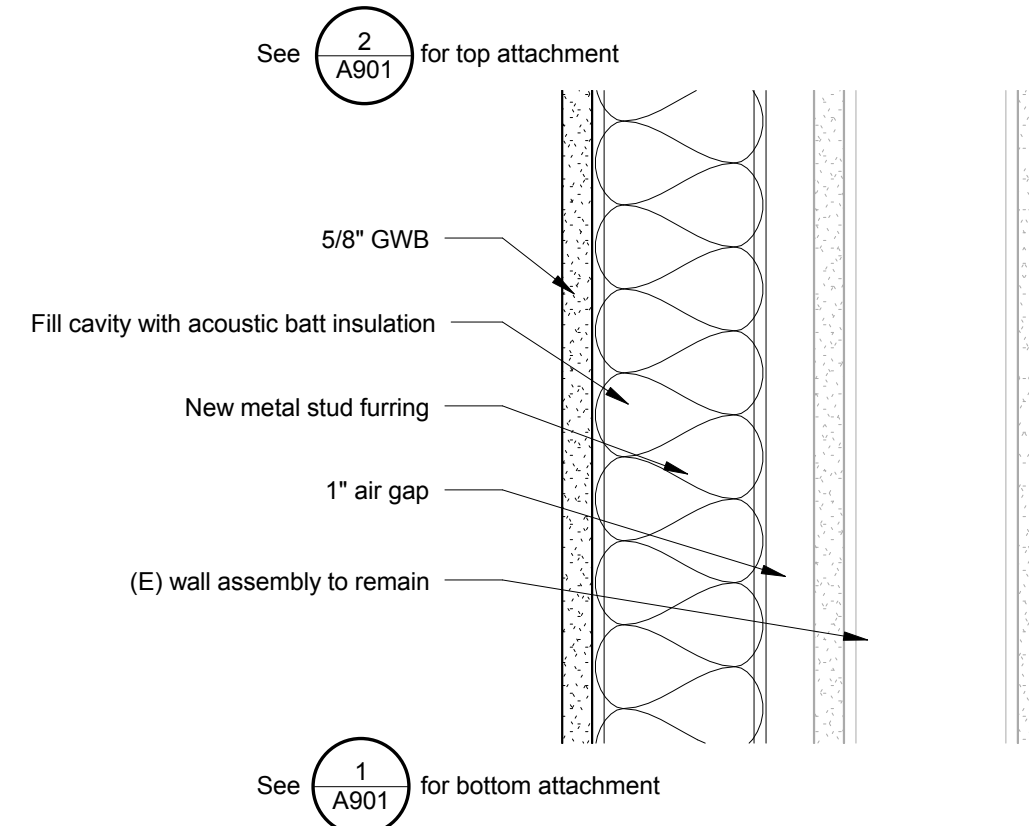
7 Storefront Window Head  
3" = 1'-0"



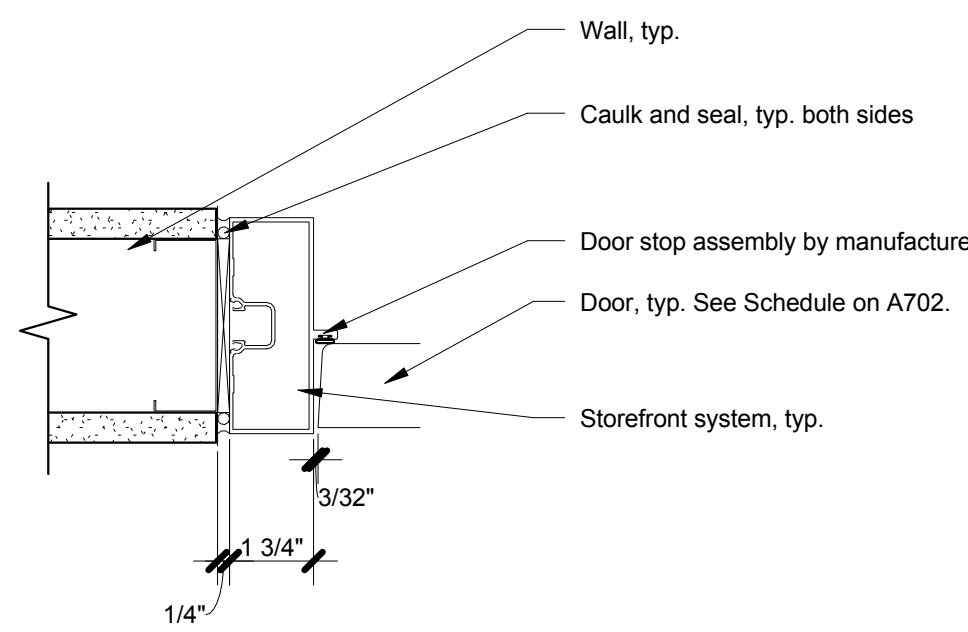
3 New Framed Wall on (E) Pony Wall  
3" = 1'-0"



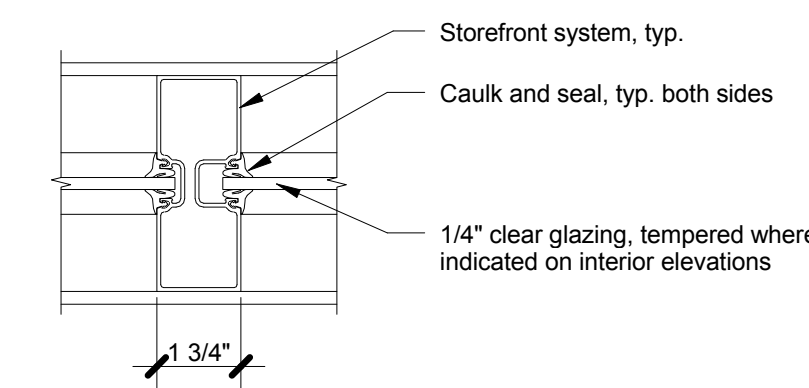
18 Storefront Transom Jamb @ Wall  
3" = 1'-0"



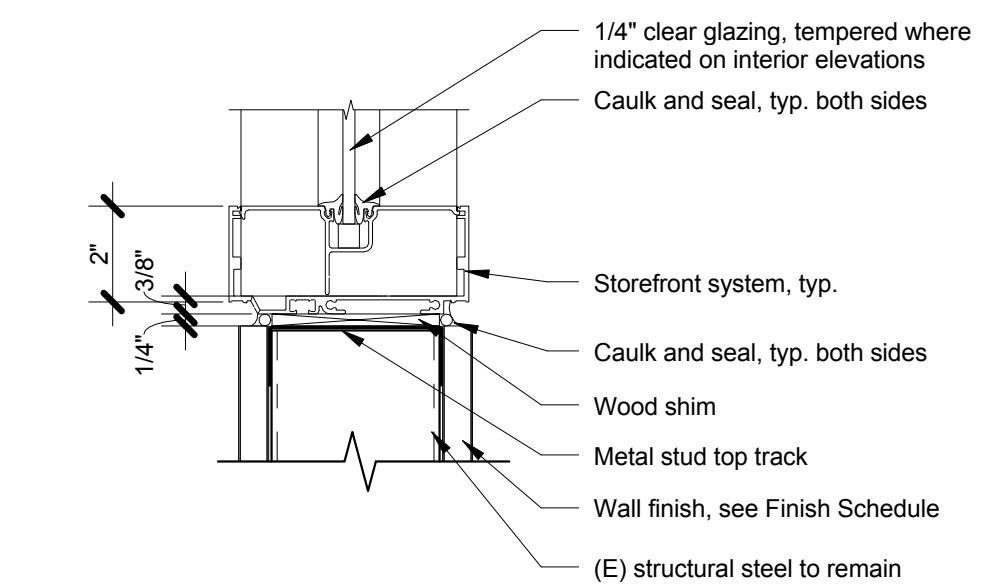
14 New Furred Wall  
3" = 1'-0"



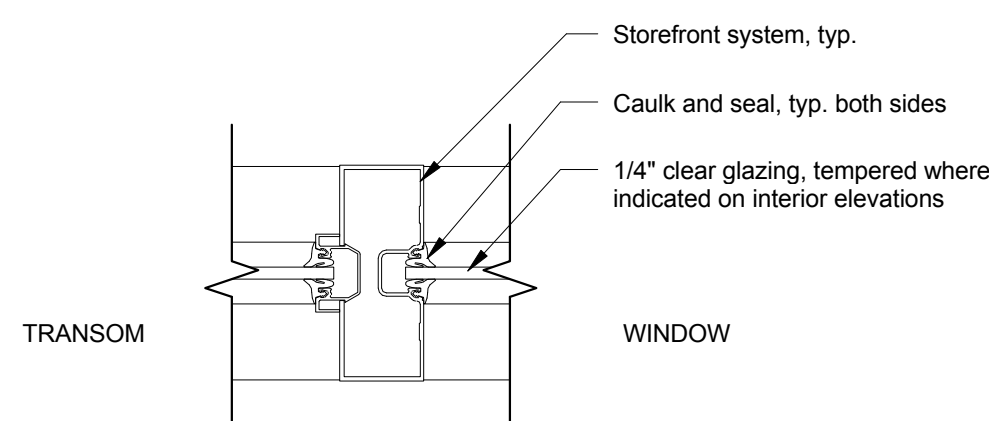
10 Storefront Door Jamb (@ Wall)  
3" = 1'-0"



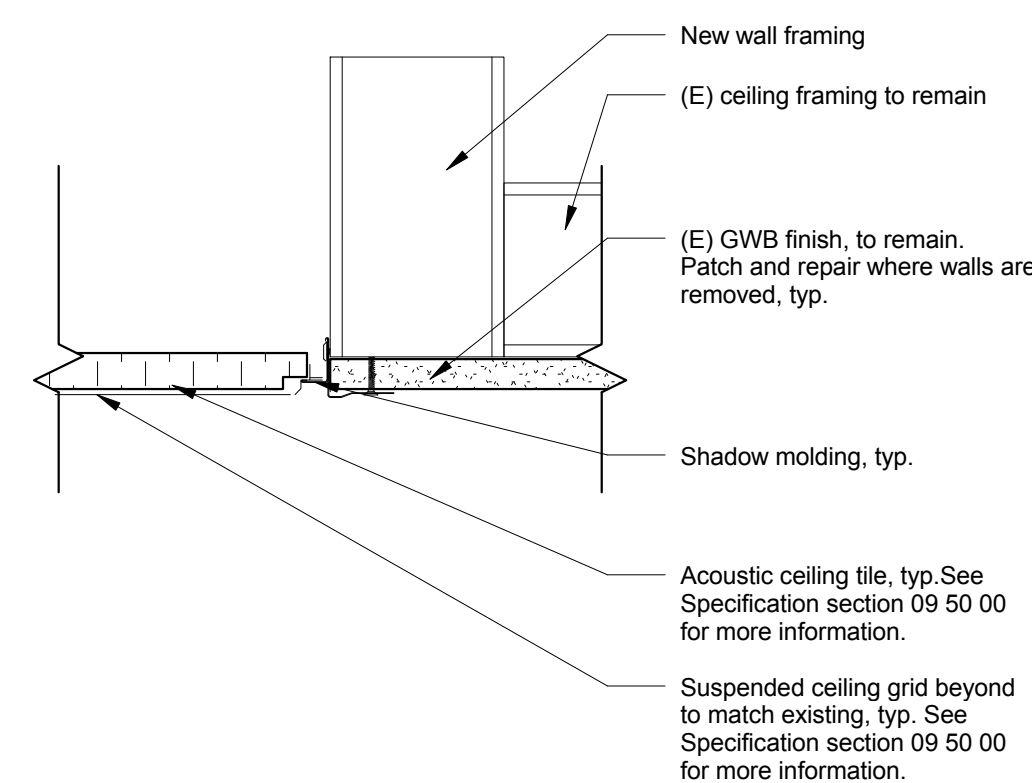
6 Storefront Vertical Mullion  
3" = 1'-0"



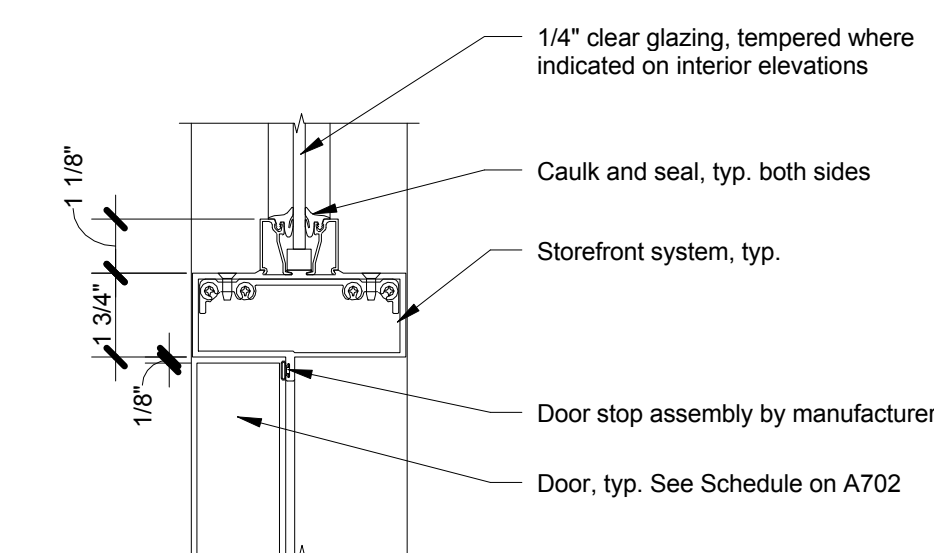
2 Storefront Bottom @ Pony Wall  
3" = 1'-0"



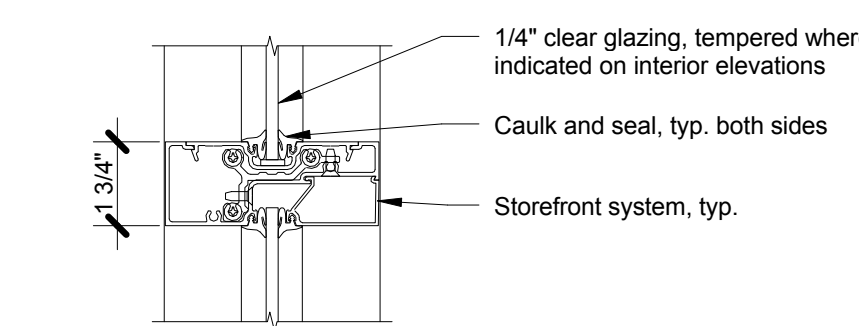
17 Storefront Transom Jamb @ Sidelight  
3" = 1'-0"



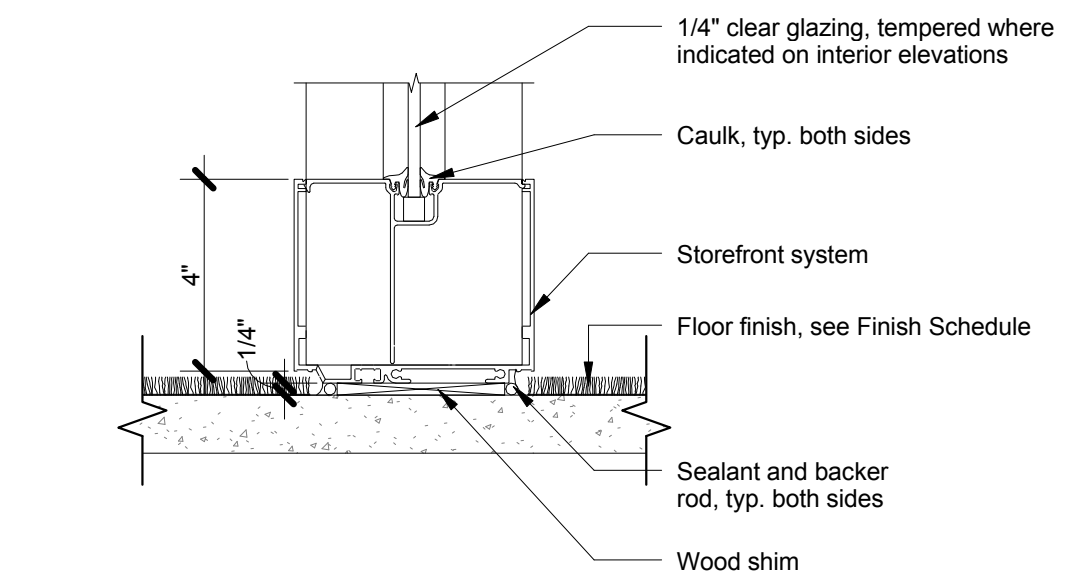
13 GWB/AC Transition  
3" = 1'-0"



9 Storefront Door Head @ Transom  
3" = 1'-0"



5 Storefront Horizontal Mullion  
3" = 1'-0"

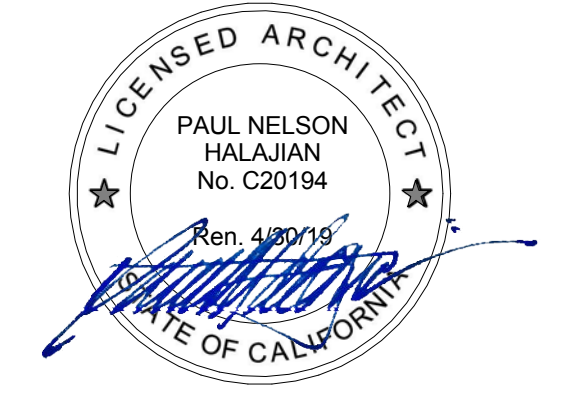


1 Storefront Bottom @ Floor  
3" = 1'-0"

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PROJECT:  
**UC Merced  
Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343

SHEET: Details

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:

NO.	DESCRIPTION

PROJECT NUMBER:

2018-18

SHEET NUMBER:

A902

## Audio-Visual Specifications

The Audio Visual system shall consist of the devices listed below and as shown on the Drawings. Contractor shall provide all miscellaneous appurtenances for mounting, connections, cords, cables, and other items as required for a complete and functional installation.

Models of all equipment noted below are to be confirmed via RFI by the University at the time of equipment orders. Exact equipment, properties, and connection requirements may vary. Coordinate exact requirements with University prior to rough-in and install.

Utilize digital connections between systems components wherever possible by the product manufacturer

Minimize signal conversions through from source to destination in systems deployment.

## Owner-Furnished Equipment List

Device/Item	Manufacturer	Model	Quantity
Flat Panel Display	NEC	V652	1
Speaker Bar	NEC	SP-TF1	1
Video Input Plate			
2 Gang Mounting Frame (White)	Extron	70-616-13	3
Blank Plate (White)	Extron	70-090-21	3
Blank Plate (White)	Extron	70-090-22	3
Touchpad	AMX	MCP-108-WH	1
PoE Injector	AMX	PS-POE-AF-TC	1

### COMMUTER LOUNGE

#### Video System

##### Flat Panel Display

Provide the following flat panel display, including all required back boxes, mounting hardware, and point-to-point wiring as required for a complete installation.

- 1) Infrastructure – either 16G steel backing behind gypsum or surface mounted Unistrut (coordinate with mount selection and location)
- 2) (1) OFE 65" NEC Display
- 3) Install wall mounted flat panel display with bottom of display at 42" AFF centered on wall
- 4) Provide recessed FSR wall box
  - (a) Centered 60" AFF
  - (b) Power: 120 VAC duplex outlet

#### Audio System

##### Speaker Bar

Provide the following speaker bar audio system, including all required mounting hardware and point-to-point wiring as required for a complete installation.

- 1) OFE Soundbar to be attached to display

##### Video Input Plate

Provide the following video input plates, including all required back boxes, mounting hardware, and point-to-point wiring as required for a complete installation.

Video inputs shall terminate at 2-gang wall plate located at 18" AFF centered on wall

##### HDMI

- 1) HDMI pigtail connections to FSR wall box

##### Control System

Provide the following control system, including all required back boxes and point-to-point wiring as required for a complete installation.

- 1) Touchpad shall perform the following functions:
  - (a) Power on and off display
  - (b) Switch inputs
  - (c) Control volume
- 2) Infrastructure – 1" Conduit between 2-gang touch pad location and FSR wall box
- 3) OFE Touchpad – AMX MCP-108
- 4) OFE PoE Injector to be either affixed to back of display or resting in FSR wall box

### TUTORING ROOM (ROUGH-IN ONLY)

#### Video System

##### Flat Panel Display

Provide rough-ins for the following flat panel display.

- 1) Infrastructure – 16G steel backing behind gypsum (coordinate with mount selection and location)
- 2) (1) OFE 65" NEC Display
- 3) Rough-in for wall mounted flat panel display with bottom of display at 42" AFF located per drawing below. Verify location with University prior to installation.
- 4) Provide recessed FSR wall box
  - (a) Centered 60" AFF
  - (b) Power: 120 VAC duplex outlet

#### Audio System

##### Speaker Bar

Provide rough-in for the following speaker bar audio system.

- 1) OFE Soundbar to be attached to display

##### Video Input Plate

Provide the following video input plates, including all required back boxes, mounting hardware, and point-to-point wiring as required for a complete installation.

Video inputs shall terminate at 2-gang wall plate located at 18" AFF, located per drawing below. Verify location with University prior to installation.


##### HDMI

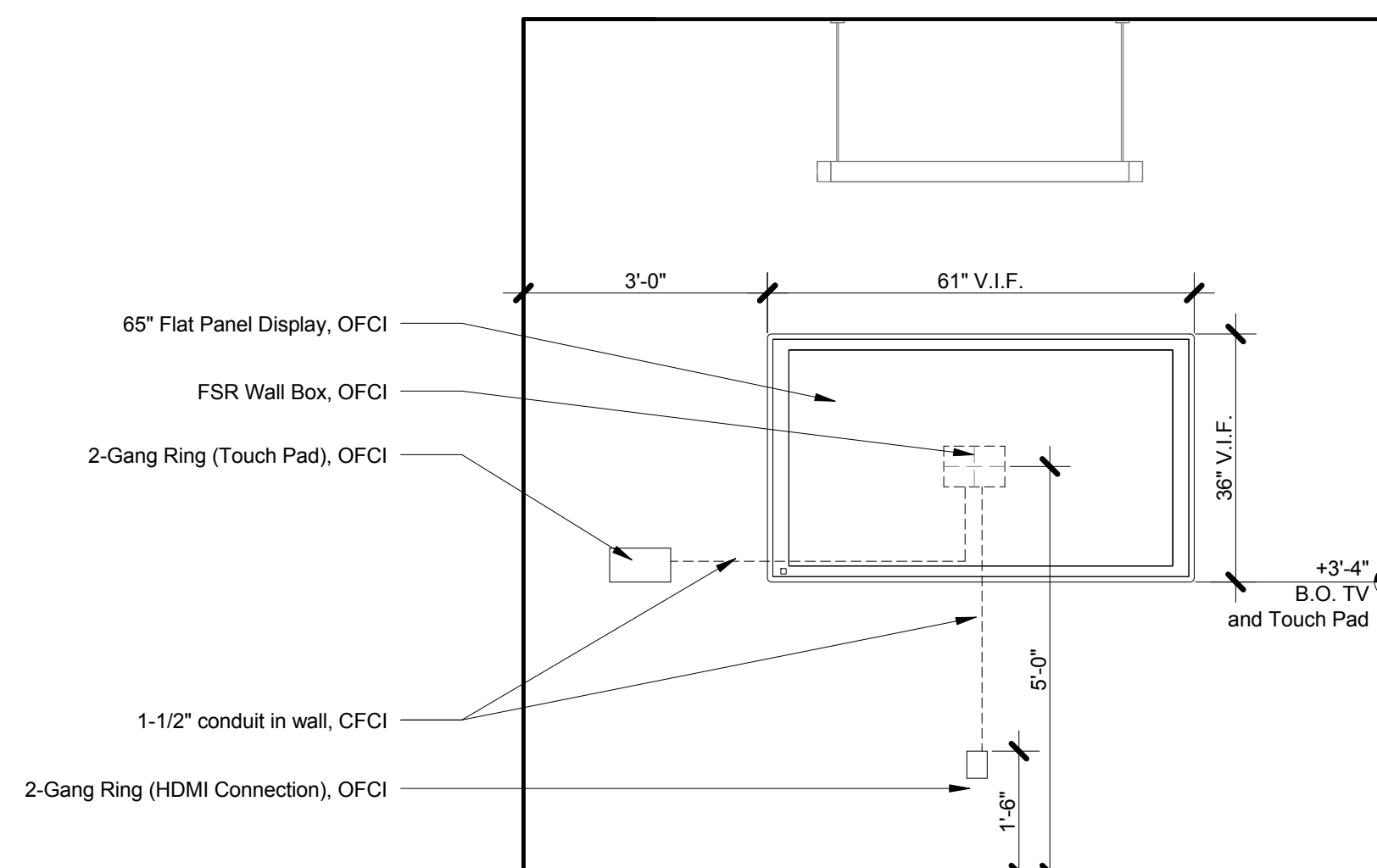
- 1) HDMI pigtail connections to FSR wall box

##### Control System

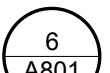
Provide rough-in for the following control system, including all required back boxes and point-to-point wiring as required for a complete installation.

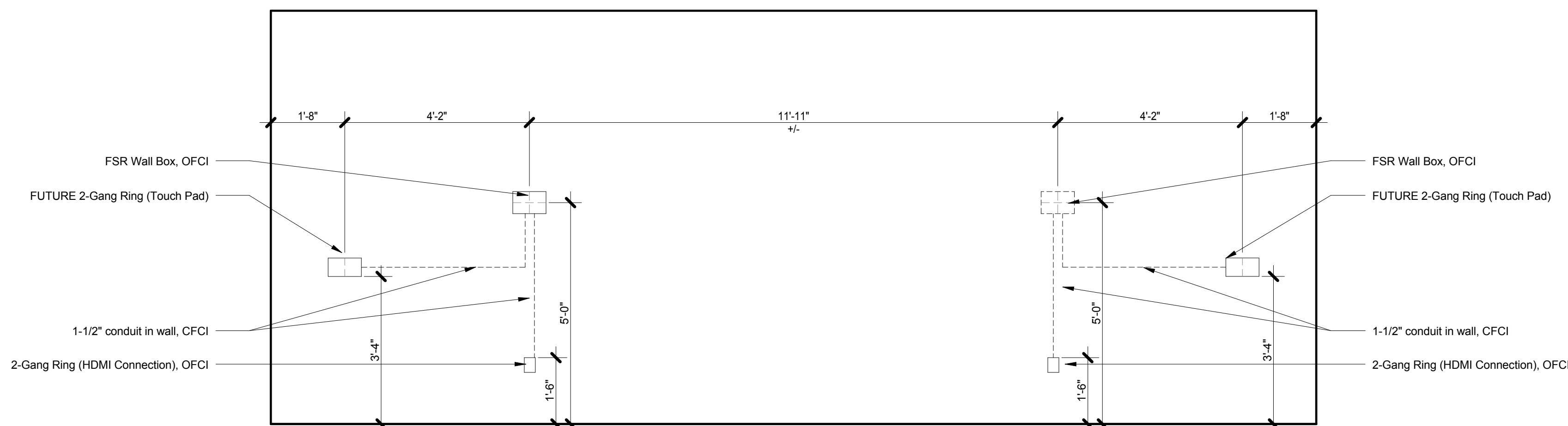
- 1) FUTURE OFCI Touchpad shall perform the following functions:
  - (a) Power on and off display
  - (b) Switch inputs
  - (c) Control volume
- 2) Infrastructure – 1" Conduit between 2-gang touch pad location and FSR wall box
- 3) OFE Touchpad – AMX MCP-108
- 4) OFE PoE Injector to be either affixed to back of display or resting in FSR wall box.

See  for architectural information.



① 330B\_TV Area\_East AV  
1/2" = 1'-0"

See  for architectural information.



② 338\_Tutoring\_West AV  
1/2" = 1'-0"

PH

## PAUL HALAJIAN ARCHITECTS

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# Kolligian Library 3W Renovation

5200 Lake Road, Merced, CA 95343

SHEET: Audio Visual Information

PROJECT:  
**UC Merced**

DRAWING SET INFORMATION:

07.10.2018 Bid Set

REVISIONS:

PROJECT NUMBER:  
2018-18

SHEET NUMBER:  
AV001

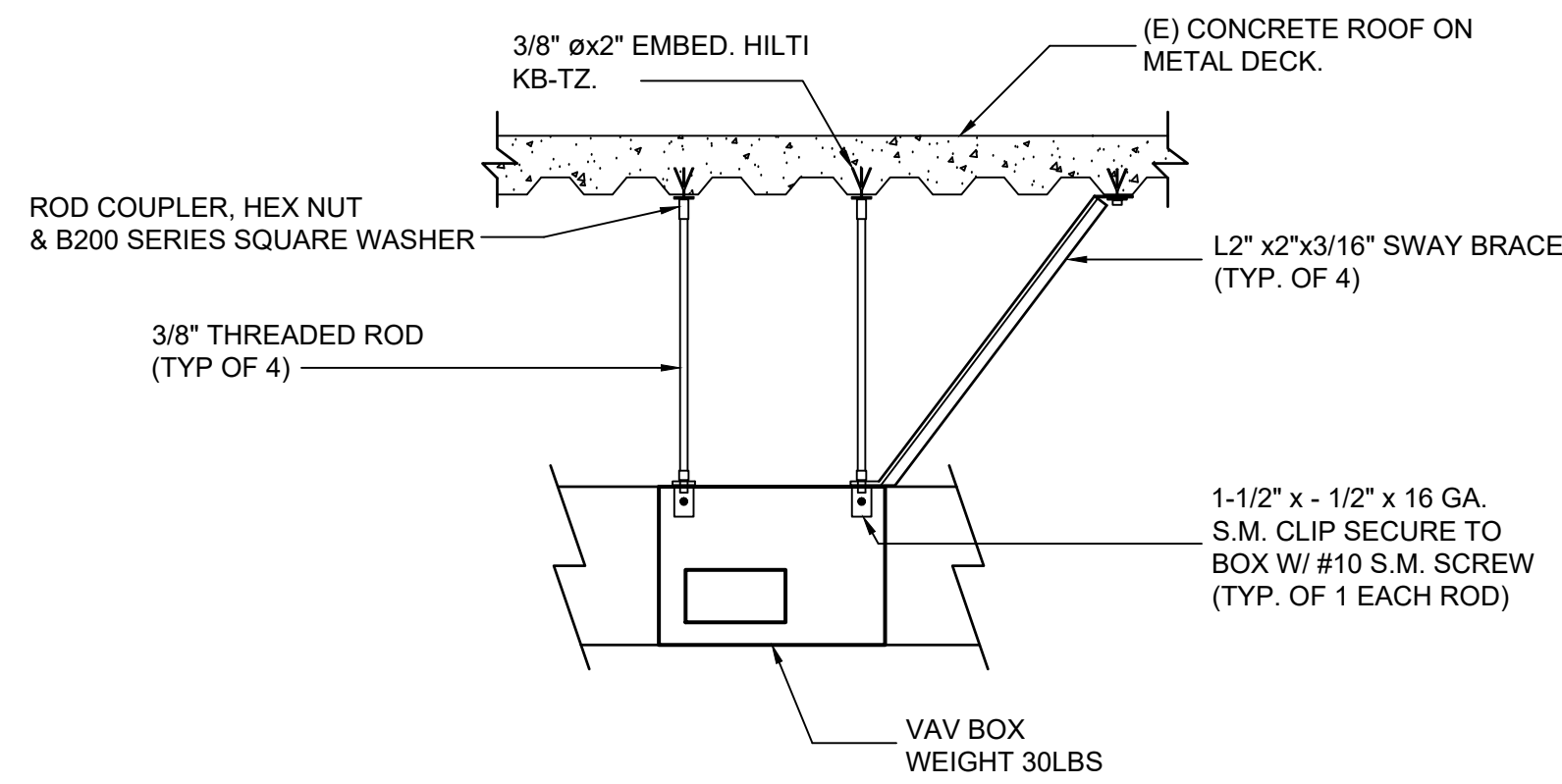
J:\18011 UC Merced 3rd Floor Library\04-Drawings\M200 - 18011.dwg, 6/28/2018 5:14:35 PM, AutoCAD PDF (General Documentation).pc3

**GENERAL NOTES:**

- COORDINATION OF WORK: LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS ARE GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME OF THE WORK MAY BE SHOWN OFFSET FOR CLARITY. THE ACTUAL LOCATION OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORT, ETC. ALL DUCT AND PIPE ELBOWS AND ELEVATIONS ARE NOT SHOWN. CONTRACTOR TO ENSURE BID COVERS ELEVATION CHANGES TO INTERFERENCE WITH OTHER UTILITIES. ALL WORK SHALL BE CAREFULLY PLANNED PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCES WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL OR OTHER ELEMENTS. VERIFY THE PROPER VOLTAGE AND PHASE FOR ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO THE INSTALLATION OF ANY WORK OR ORDERING OF ANY EQUIPMENT.
- CUTTING, BORING, SAW CUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAILED IN THE DRAWINGS OR ACCEPTED BY THE ARCHITECT AND STRUCTURAL ENGINEER WITH THE APPROVAL OF THE UCM REPRESENTATIVE OR AUTHORITY HAVING JURISDICTION.

**APPLICABLE CODES AND REGULATIONS:**

CALIFORNIA CODE OF REGULATIONS (C.C.R.)  
 PART 1 - 2016 CALIFORNIA STANDARDS ADMINISTRATIVE CODE, TITLE 24, C.C.R.  
 PART 2 - 2016 CALIFORNIA BUILDING CODE (C.B.C.), TITLE 24, C.C.R. VOLUMES 1-3.  
 PART 3 - 2016 CALIFORNIA ELECTRICAL CODE, TITLE 24, C.C.R.  
 PART 4 - 2016 CALIFORNIA MECHANICAL CODE (C.M.C.), TITLE 24 C.C.R.  
 PART 5 - 2016 CALIFORNIA PLUMBING CODE (C.P.C.), TITLE 24, C.C.R.  
 PART 6 - 2016 CALIFORNIA ENERGY CODE, TITLE 24, C.C.R.  
 PART 9 - 2016 CALIFORNIA FIRE CODE, TITLE 24, C.C.R.



**A VAV MOUNTING DETAIL**

GRILLE SCHEDULE		
TAG	A	B
TYPE	CEILING SUPPLY	CEILING RETURN
DESCRIPTION	TITUS PSS BORDER TYPE 3, LAY-IN GRILLE PERFORATED CEILING DIFFUSER NO. 26 WHITE FINISH	TITUS PAR BORDER TYPE 3, LAY-IN GRILLE PERFORATED CEILING DIFFUSER NO. 26 WHITE FINISH

VARIABLE AIR VOLUME	
TAG	VAV-1
MANUFACTURER	TITUS
MODEL	DESV
ROOM SERVED	TUTORING LOUNGE
INLET SIZE (IN)	8"
COOL MAX / MIN (CFM)	700 / 110
WEIGHT	30 LBS
HEAT MAX (CFM)	-
PRESSURE DROP (IN. W.G.)	0.32

24 V CONTROL TRANSFORMER

AIR CONDITIONING LEGEND		
SYMBOL	ITEM	ABBR
—	ROUND DUCT	
- - - -	EXISTING ROUND DUCT	
—	SHEET METAL DUCT	
—	DUCT WITH ACOUSTIC LINING	
—	SUPPLY AIR DUCT DROP	
—	RETURN AIR DUCT DROP	
—	EXHAUST AIR DUCT DROP	
—	SUPPLY AIR DUCT RISE	
—	RETURN AIR DUCT RISE	
—	EXHAUST AIR DUCT RISE	
—	VOLUME DAMPER	
—	FIRE DAMPER WITH ACCESS PANEL	FD
—	FIRE/SMOKE DAMPER WITH ACCESS PANEL	FSD
CFM	CUBIC FEET OF AIR PER MINUTE	CFM
Ⓢ	THERMOSTAT 48" AFF	
Ⓜ	HUMIDISTAT	
→	DIRECTION OF FLOW	
→	SUPPLY AIR	SA
→	RETURN AIR	RA
→	EXHAUST AIR	EA
→	OUTSIDE AIR	OSA
→	PIPE OR DUCT TURN DOWN	
→	PIPE OR DUCT TURN UP	
→	POINT OF CONNECTION	POC
→	EXISTING (DESIGNATED)	(E)
→	SMOKE DETECTOR	SD
→	DUCT TO BE DEMOLISHED	
→	REMOTE SENSOR	RS
→	BACK-DRAFT DAMPER	BDD

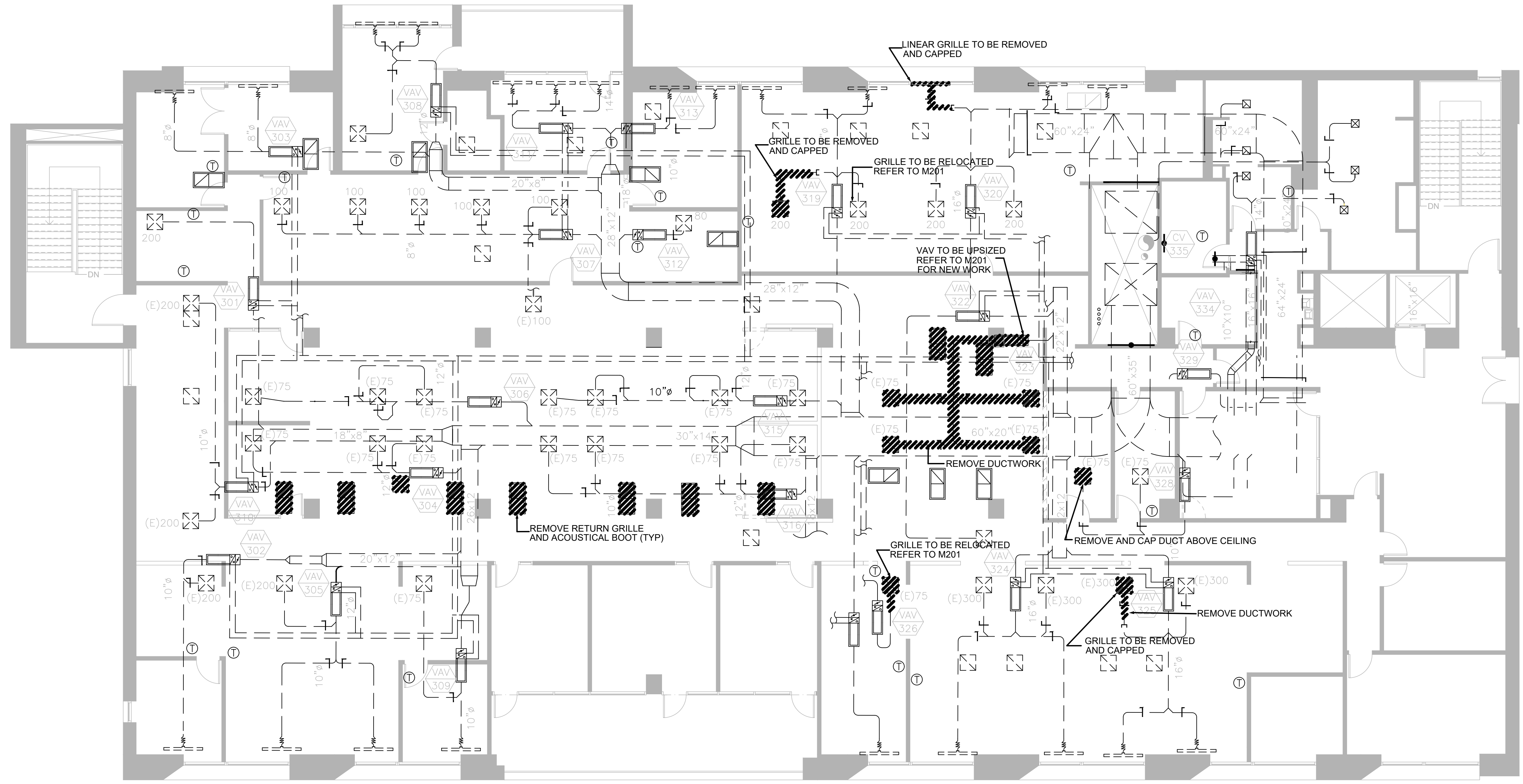
**PH**

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PAUL NELSON HALAJIAN No. C20194  
 Ren. 4/30/19

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PO BOX 8800  
 FRESNO CA 93747  
 559-259-6689

**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
 5200 Lake Road, Merced, CA 95343  
**SHEET: Demo Floor Plan**

**DRAWING SET INFORMATION:**

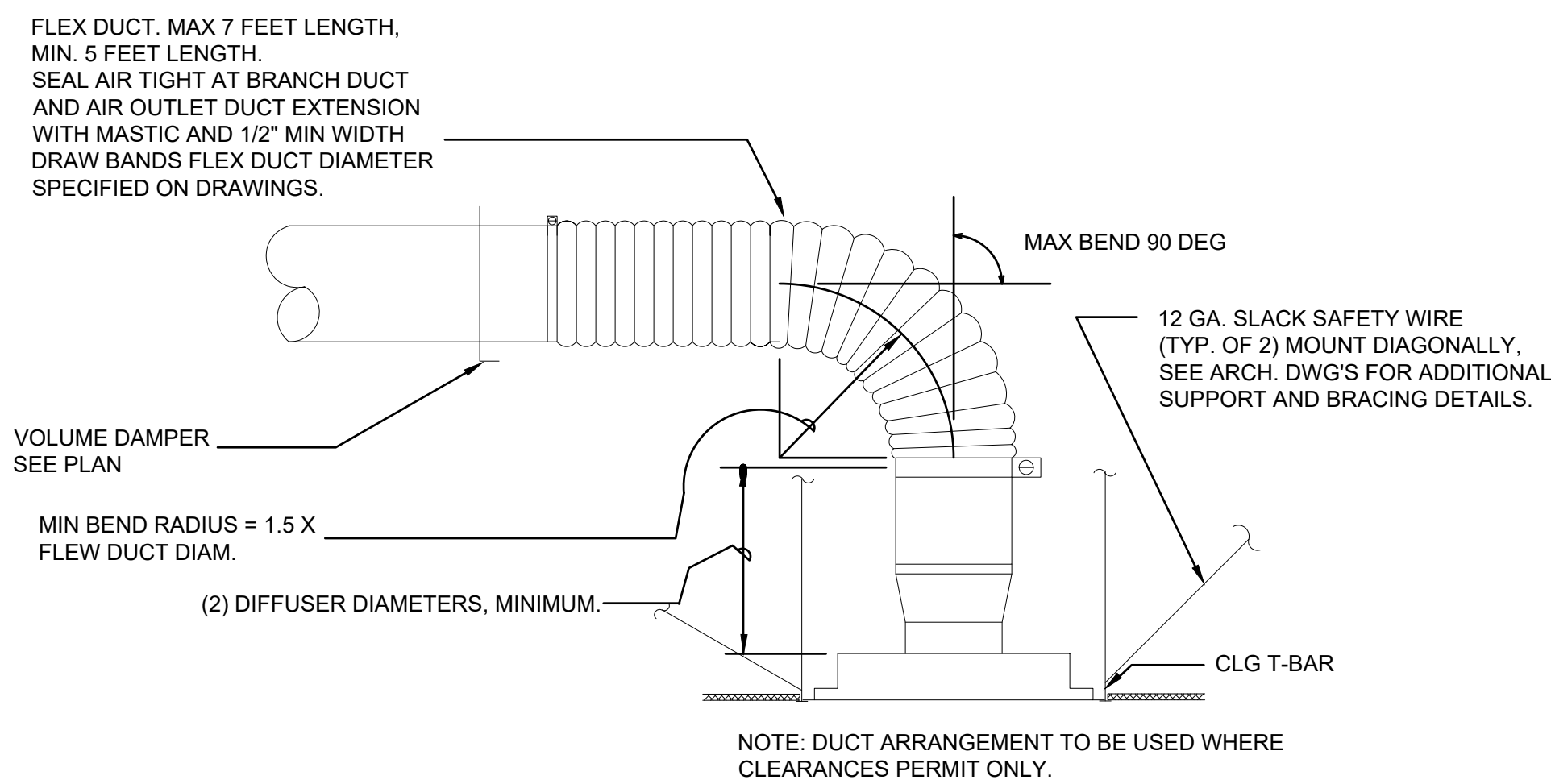
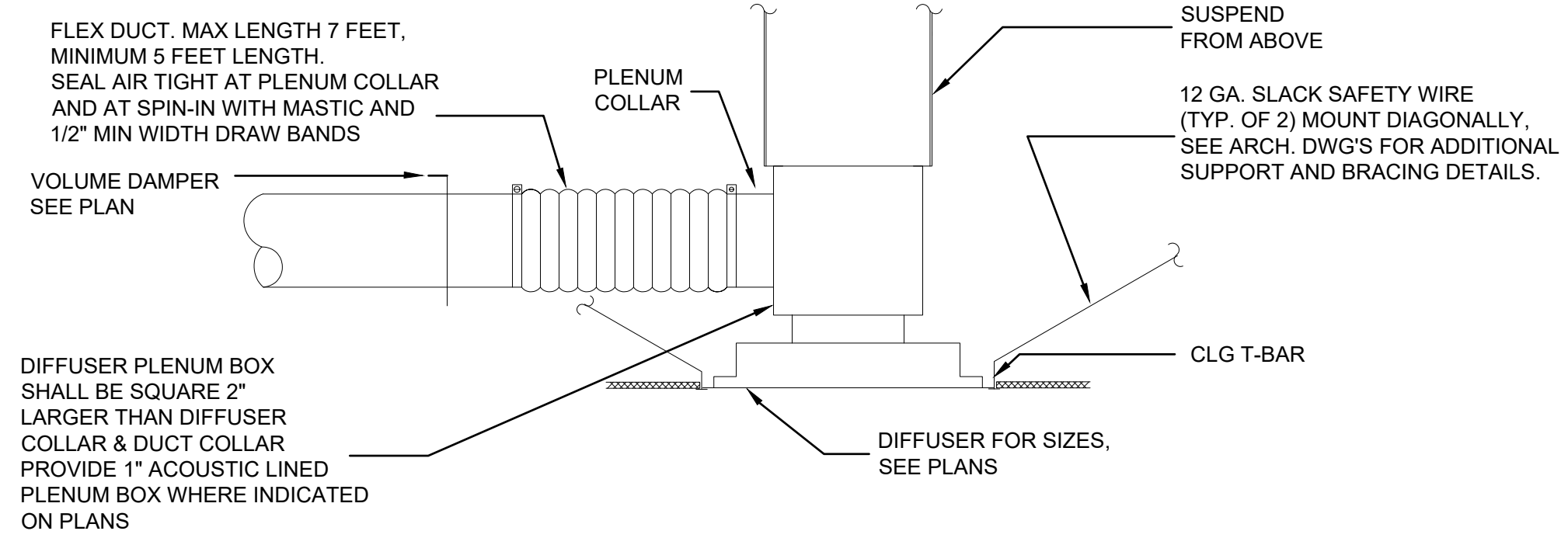
05.18.2018	Schematic Design
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**REVISIONS:**

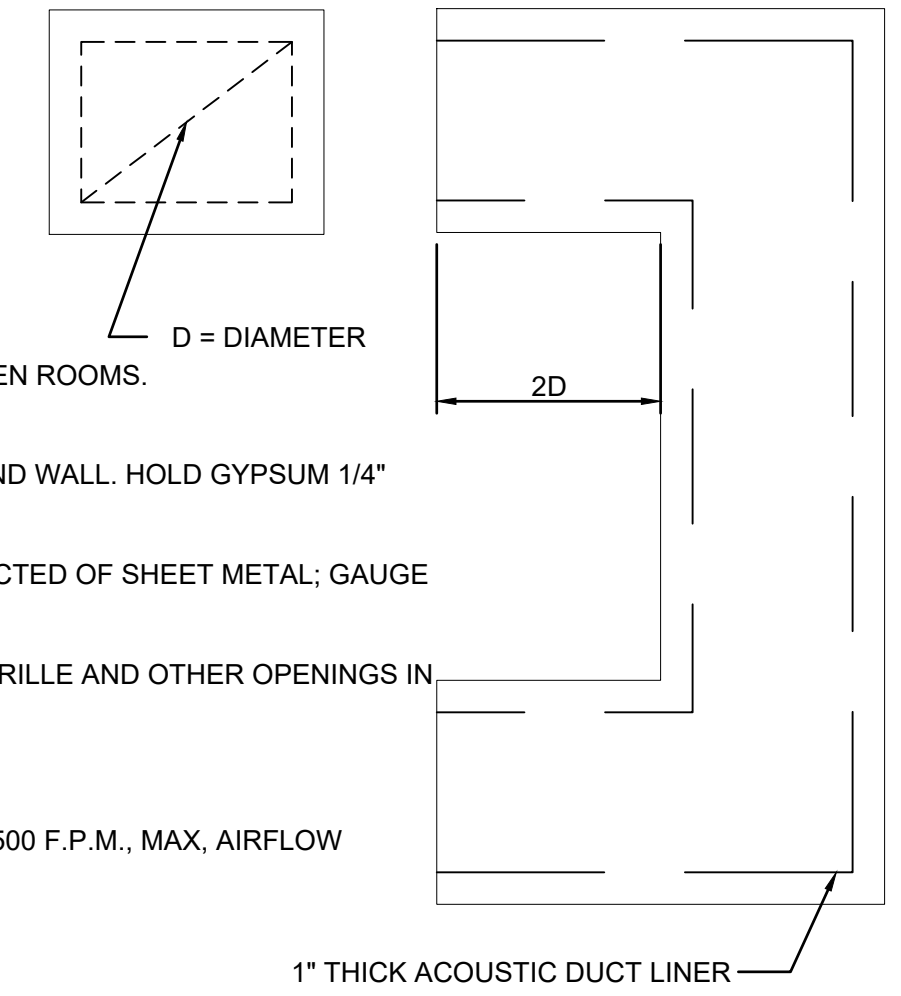

**PROJECT NUMBER:**  
 2018-19

**SHEET NUMBER:**  
 M200

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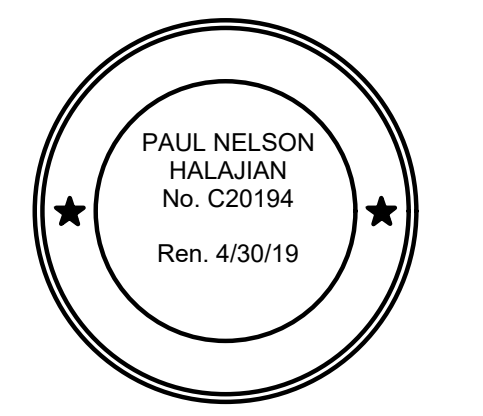
- PURPOSE:**  
TO MAINTAIN SOUND INSULATION BETWEEN ROOMS.
- NOTES:**
1. SEAL BETWEEN TRANSFER BOOT AND WALL. HOLD GYPSUM 1/4" OFF DUCT.
  2. TRANSFER BOOTS TO BE CONSTRUCTED OF SHEET METAL; GAUGE PER SMACNA GUIDELINES.
  3. LOCATE AWAY FROM RETURN AIR GRILLE AND OTHER OPENINGS IN CEILING.
  4. NO LINE OF SIGHT THROUGH BOOT.
  5. SIZE TRANSFER BOOT TO ACHIEVE 500 F.P.M., MAX. AIRFLOW VELOCITY.



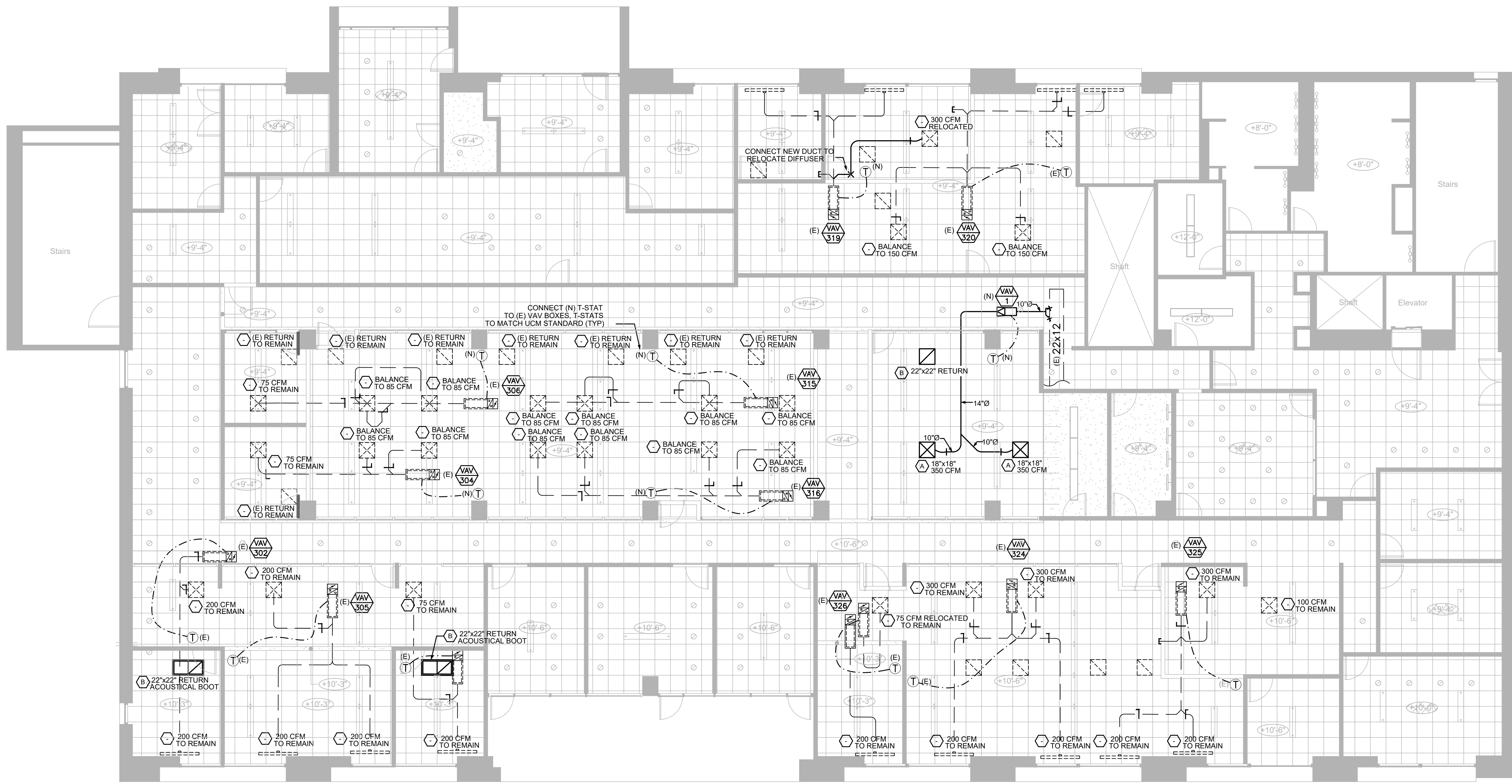
**B** TYPICAL DIFFUSE CONNECTION DETAILS

**A** ACOUSTICAL TRANSFER BOOT

**PH**  
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**PROJECT:**  
**UC Merced**  
**Kolligian Library 3W Renovation**  
5200 Lake Road, Merced, CA 95343  
**SHEET: Proposed Floor Plan**

**DRAWING SET INFORMATION:**

05.18.2018	Schematic Design
------------	------------------

**REVISIONS:**


**PROJECT NUMBER:**  
2018-19

**SHEET NUMBER:**  
M201



**JNL MECHANICAL DESIGN**  
PO BOX 8800  
FRESNO CA 93747  
559-259-6689

## PART 1 – GENERAL

## A. SCOPE.

1. Work Included. Provide all labor, materials and services necessary for complete, lawful and operating systems as shown or noted on the drawings or as specified here. The work includes, but is not necessarily limited to, the following:
  - a) Air distribution systems.
  - b) System energy balance.
  - c) Demolition as indicated on drawings.
  - d) HVAC controls.

## B. PERMITS AND FEES.

1. The Contractor shall take out all permits and arrange for all tests in connection with such work as required. All charges are to be included in the work. All charges or fees for service connections, meters, etc., shall be included in the work.

## C. MANUFACTURER'S RECOMMENDATIONS

1. All material, equipment, and devices, etc., shall be installed in a manner meeting approval of the manufacturer of the particular item. The Contractor shall make himself available of all installation manuals, brochures, and procedures that the manufacturer issues for the equipment and material. Contractor shall be held responsible for all installations contrary to the manufacturer's recommendations. Contractor shall make all necessary changes and revisions to achieve such compliance.

## D. GUARANTEE

1. Guarantee shall be in accordance with the General Conditions. These Specifications may extend the period of the guarantee for certain items. Where such extensions are called for, or where items are normally provided with guarantee periods in excess of that called for in the General Conditions, the certificate of guarantee shall be furnished to the Owner.

## E. DEMOLITION

1. Existing equipment, ducts, piping, valves, fittings, devices, etc., requiring removal shall be removed and delivered to the Owner at a location on the job site to be determined by the Owner. Those items determined by the Owner to be of no value shall become the property of the Contractor and shall be removed from the job site by the Contractor at the Contractor's expense.
2. Existing piping, ducts, and services, etc., requiring capping or plugging shall be capped or plugged below floors, behind walls, above ceilings or above roof unless otherwise noted.

## F. HANGERS AND SUPPORTS.

1. Provide all hangers and supports for the proper installation of equipment and materials under this Specification.
2. Any structural element required to properly hang or support piping, ducts, or equipment, etc., provided under this Specification Section and not shown on the Architectural or Structural Drawings shall be provided under this Specification Section.
3. Hangers for ducts less than six sq. ft. in cross sectional area shall have hangers per SMACNA Duct Construction Standards, 2005 Edition.
4. All ducts and mechanical piping shall be supported and seismically braced in compliance with the Guidelines For Seismic Restraints For Mechanical Systems as published by the Sheet Metal Industry Fund of Los Angeles and the Plumbing and Piping Industry Council, Inc., of Los Angeles 2008 Edition or OSHPD Pre-Approval No. OPM-0043-13 the "Maon Industries Restraint System". Copies of the above publication and details shall be provided by the Contractor and maintained at the project site until final acceptance.
5. Fire sprinkler pipes shall be braced per OSHPD Pre-Approval No. OPM-0052-13 the "Cooper B-Line / Tolco Restraint System". Copies of the above publication and details shall be provided by the Contractor and maintained at the project site until final acceptance.

## PART 2 – MATERIALS.

## A. Ductwork.

6. General.
  - e) Construct ductwork to meet all functional criteria defined in section VII, of the SMACNA "HVAC Duct Construction Standards Metal and Flexible" 2005 Edition. This shall subsequently be referred to as the SMACNA manual.
  - f) All interior ducts shall be constructed with G-60 or better galvanized steel (ASTM 527) LFQ, chem treat. Exterior ductwork or any duct exposed to high humidity conditions (i.e. dishwasher exhaust) shall be G-90 or better.
  - g) Support, access doors not part of ducts, bar or angle reinforcing damper rods and items made of uncoated mild steel shall be painted with two coats of two coats primer or provide galvanized equivalent.

3. Rectangular Ducts.

- a) Construct ductwork and supports to meet all functional criteria defined in section VII, of the SMACNA "HVAC Duct Construction Standards Metal and Flexible" 2005 Edition. Hanger spacing shall not exceed 8'.
4. Ells. Rectangular ells of ninety degrees shall be mitered and fitted with AERO/DYNE, "HEP" or equivalent, adjustable turning vane of airfoil contour design. Side rails shall be installed so that vane at heel of elbow shall fit snugly without air passing on the back side. Spacing of vanes according to manufacturers recommendations.

5. Round Ducts.a) Galvanized.

1. United McGill "Uni-Rib" spiral lockseam with standing rib duct. For round ducts, 8" diameter or less, provide Noll or Young and company snap-lock galvanized steel.

11. Round elbows shall be United McGill pleated or welded gore for use with "Uni-Seal" or "Uni-Rib" ducts (5 piece ell) Non-welded gore elbows for use with snap lock ducts shall be taped at gore intersections.

6. Duct Joints.

- a) Rectangular. All ducts shall utilize "Ductmate 25/35" factory fabricated duct joint connectors with #440 gasket tape. Flanged interior gaskets shall be Ductmate #440 or Butyl Rubber Gasket which meets Mil-C 18969B, Type II Class B, and TTS-S-001657 must also pass UL-723. The material must not contain any vehicle that will support fungal or bacterial growth. Formed on flanges shall not be accepted for any duct exceeding 42" in width or any duct subjected to greater than 2" W.G..
- b) Round. All round ducts shall utilize male-female slip joints with minimum three (3) sheet metal screws. 0-20" ducts shall utilize sealing compound applied continuously around joint before assembling and after fastening. Wrap joints with 3" wide duct tape. 21" – 72" ducts, use 3-piece, gasketed, flanged joints consisting of two internal flanges (with integral mastic sealant), and one external closure band. Ductmate Spiralmate or equal.

7. Taping.

- a) Interior to Building – Hardcast fiber tape and liquid adhesive. DT-5300 or DT-540 tape. FTA-20 adhesive. Ductmate PROseal.
- b) Exterior to Building – For joints exposed to weather, sealant shall be G.E. silicone. For joints not exposed to weather, sealant shall be Eco-Duct Seal 44-60, or United Sheet Metal.
- c) Exposed Ducts. All joints shall use Hardcast Galva-Grip or equivalent. Joint shall be finished clean from outward appearance.

8. Flexible Insulated Ducts.

- a) Shall be J.P. Lamborn Company Type AMF-07 or Thermaflex M-KE acoustical low pressure duct. Duct shall be listed and labeled UL-181 Air Duct; meet NFPA-HUD minimum standards and comply with UMC 6. Duct factory R-value 4.2 minimum. In un-conditioned spaces, R-8 minimum.
- b) Hangers shall consist of minimum 3" wide 2B gauge galvanized steel and shall be spaced a maximum of 36" on center. Flexible duct shall be installed in compliance with the manufacturer's latest installation instructions. No kinks or sharp bends allowed. Turning radius shall be a minimum of 1.5 times diameter of duct. A copy of which shall be at the site during and after installation. Provide a minimum of at least one hanger per duct section.

- c) Connections to round ducts or collars shall be made with galvanized or stainless steel worm clamps or "Panduit" adjustable clamps listed by UL-181.

## HVAC Sheet Specifications

- a) Unless indicated otherwise on the drawings, flexible duct shall be limited to the final 7 foot portion of the duct system connecting to the supply diffuser or return grille. Flex duct shall be limited to factory cut pieces with factory applied end connections.

A. Volume Dampers.

1. Branch Duct Volume Damper – Volume control damper (VCD) in square or rectangular ducts shall be as follows: Opposed blade, 6" maximum blade width, 16- gauge blade, 48" maximum length, nylon or oil impregnated bronze bearings, 1/2" diameter pin shaft, 16-gauge channel frame, actuating rod out of air stream. VCD in round duct shall be as follows: Damper blade full height of branch and 1" less than branch width. All branch dampers shall have regulator with spring loaded shaft nut and serrated self-locking die cast core. Ventik 640. Provide remote ceiling operator with chrome plated or painted cover where shown on drawings or where damper control is otherwise inaccessible.

C. INSULATION.1. General.

- a) Insulation shall be provided in accordance with the "National Insulation Contractors Association" manuals. Insulation, except for interior duct liner, shall be applied by a Contractor holding a valid California C-2 License.
- b) All insulation shall be strict compliance with California Building Energy Efficiency Standards, 2013 Edition, Title 24.
- c) Refer to table 120.3-A for pipe insulation thickness required. This shall be a minimum. If construction documents call for a higher rating, the higher rating shall apply.
- d) Insulation shall have a flame spread of not more than 25 and a smoke developed rating of not more than 50.

2. Ducts.

- a) General. All supply, return, exhaust ducts and plenums shall be insulated externally and/or lined internally as specified herein or as indicated on the drawings. Ducts in directly or indirectly conditioned spaces shall be insulated to amimum level of R4.2 Ductwork in unconditioned spaces such as on attic where the roof insulation is at the ceiling level or where located outdoors shall have an insulation level of R8 minimum.
- b) Ducts in Attics. All supply and return ducts shall be insulated externally with 2" thick fiberglass 3/4# density. Where rectangular ducts are lined internally, they shall be wrapped on the exterior with 1" thick fiberglass, 3/4# minimum density.
- c) Interior Duct Surfaces. All supply, return, or exhaust duct connections to air conditioning units or fans shall be internally lined for a minimum distance of ten lineal feet upstream and downstream of fan unless otherwise indicated on the drawings. Interior duct liner where applied for attenuation purposes only shall be 1" thick Manville "Permacote Linacoustic" glass fiber and thermosetting resin duct liner, R-4.2. Provide with antimicrobial edge coating. See paragraph above.

3. Application.

- a) Duct Wrap. Shall be tightly wrapped around ducts to prevent sagging with longitudinal and transverse lap of at least 6". Laps shall be wired or stapled to eliminate gaps. Insulation shall be secured by wrapping with 18 gauge galvanized wire 12 o.c. adhesive. Insulation shall be applied with density identification exposed.
- b) Duct Liner. Shall be adhered to clean metal with minimum 100% coverage of adhesive such as 3M Adhesive #38, additionally secured with approved mechanical clips or welded pins per SMACNA standards. Provide with antimicrobial edge coating. Apply per paragraph 2. d) above. Coating edges with adhesive is not acceptable.

## PART 3 – INSTALLATION

A. Ductwork.1. General.

- a) Installation shall conform with NFPA 90A and SMACNA Low Pressure Duct Construction Standards 2005 Edition. Provide mounting and supporting of Ductwork and accessories including, but not limited to, structural supports, hangers, vibration isolators, stands, clamps and brackets, access doors, and dampers. Install ductwork accessories as indicated in accordance with the manufacturer's printed instruction. Allow clearance for inspection, repair, replacement, and service. Ductwork and accessories shall be installed in a manner to prevent vibration and rattling.

2. Deflectors.

- a) Provide in rectangular elbows, duct mounted supply outlets, take-off or extension collars to supply outlets, and tap-in branch take-off connections. 45 degree take-off is an acceptable alternative for low velocity systems (below 1,500 FPM).

3. Support.

- a) All ducts shall be supported and seismically braced in compliance with the Guidelines For Seismic Restraints For Mechanical Systems as published by the Sheet Metal Industry Fund of Los Angeles and the Plumbing and Piping Industry Council, Inc., of Los Angeles 2008 Edition or OSHPD Pre-Approval No. OPM-0043-13 the "Maon Industries Restraint System". Copies of the above publication and details shall be provided by the Contractor and maintained at the project site until final acceptance.

4. Grilles.

- b) Each air inlet and outlet shall be flush with finished surface of wall or ceiling and shall be securely attached thereto. Provide plaster grounds at locations of all wall and hard surfaced ceiling grilles.

5. Branch Take-Offs.

- a) All branch ducts from main supply air and to return air trunk duct shall be provided with splitter blade full height of branch take-off and 1" less than branch width. Regulators to be Young or equal. Dampers located in inaccessible areas shall have extended shafts with concealed regulator in adjacent ceiling or wall.

6. Access.

- a) Provide duct access doors as required to adjust equipment and dampers. Provide wall or ceiling access panels, or remote actuators as required where equipment and dampers are not otherwise accessible.

7. Flexible Connections.

- a) Connection of ductwork to any vibrating equipment shall be with 3" (min.) flexible connection. Install with ample slack and uniform gap. There shall be no metal to metal contact across flexible connection. Flexible connections exposed to weather shall have a protected sheet metal cover.

8. Dampers.

- a) Install volume control damper and damper regulator on all new branch ducts.

9. Flexible Glass Fiber Duct.

- a) The use of flexible duct is limited to the last 7 feet of each branch duct (i.e. one 7 foot section of flexible duct may used to connect the grille to the sheet metal branch duct). No joints permitted in 7' length. Joints shall be installed with metal bands and fiber tape and adhesive. Minimum turn radius shall be in accordance with SMACNA Standards (turn radius of duct centerline not less than 1.5 times the duct diameter).

B. Tests.1. Ductwork.

- a) All transverse joints and longitudinal seams shall conform to SMACNA's Class A sealing requirements as defined on page 1-6 of the 1985 SMACNA Manual, first edition.
- b) Constant volume systems supply ductwork allowable leakage = 1% of design CFM.
- c) Constant volume systems return ductwork allowable leakage = 2% of design CFM.
- d) Variable air volume systems supply ductwork allowable leakage: Fan to V.A.V. boxes = 1% of design CFM. V.A.V. boxes to registers = 2% of design CFM.
- e) Variable air volume systems return ductwork allowable leakage = 2% of design CFM.
- f) Installed ductwork shall be tested prior to installation of access doors, take-offs, etc.
- g) All leak testing shall be witnessed by the inspector of record or the specifying engineer. The contractor shall provide minimum 72 hours notice prior to testing. Any testing not witnessed by the IOR or engineer shall be considered invalid.
- h) Testing shall be performed on the first 200' of high pressure ductwork installed as required to establish quality of workmanship for this project. Testing shall be performed as follows:
  - i) Perform test in accordance with HVAC Air Duct Leakage Test Manual. Use a certified orifice tube for measuring leakage. Define section of system to be tested and blank off. Determine the percentage allowed leakage for section of test duct. Determine allowable CFM leakage for test section. Pressurize to operating pressure and repair any significant audible leaks. Re-pressurize and measure leakage. Repeat steps until leakage is within tolerances specified.

C. System Air and Water Balance.1. General.

- a) The contractor shall employ the services of an independent system balancing company registered by NEBB or AABC. The balancing contractors shall be limited to one of the following:
- b) Submit within thirty (30) days after receipt of contract, submittal data forms of the selected balance company for the testing and balancing of the air conditioning, heating, and ventilation systems.
- c) After development of the balancing procedure to be followed for each respective system, a representative of the system balancing company shall periodically visit the jobsite, particularly before any insulation is applied to ducts or piping, and confirm the suitability of the ducts, piping, accessories, hardware, and access panels installed for balancing. Any noted deficiencies shall be reported to the Contractor in writing with a copy to the Engineer. Noted deficiencies shall be corrected at this time by the Contractor.
- d) Final system testing and balance shall not begin until the system has been completed and is in full working order. The Contractor shall put all heating, ventilating, and air conditioning systems and equipment into full operation and shall continue the operation each working day during the balancing procedure. The balancing company shall be responsible for all adjustments to the heating, cooling and ventilating equipment necessary for the system to operate as specified. Upon completion conduct a running test under substantial load conditions demonstrating to the satisfaction of the Owner's representative that all equipment and controls are operating as intended and have been properly adjusted for these conditions.

- e) The system balance company shall include an extended warranty of one hundred eighty (180) days after completion and acceptance of test and balance work, during which time the Engineer at his discretion may request a recheck, or resetting of any outlet, fan, etc., as listed in report. The system balance company shall provide technicians to assist the Engineer in any re-test required during this period. Seasonal re-balance during the first year of operation is part of the scope of this specification.

- f) The flow quantities shown on the drawings are not to be considered absolute. If changes in flow quantities are required to attain comfort conditions in any area, the balancing company shall make the required changes at no extra cost.

2. Procedure.

- a) The testing and balancing of the systems, including all equipment, ducts, piping, and accessories shall be done in strict compliance with the latest edition of the Procedural Standards for Testing, Adjusting, Balancing of Environmental Systems as published by National Environmental Balancing Bureau or equivalent AABC standard.

3. Acceptance of Tests.

- a) In the event any tests or inspections prove unsatisfactory, such shall be made a matter of record. Acceptance of the system shall be postponed until all defects or improper adjustments have been corrected and the work is again inspected and tests satisfactorily repeated.

4. Data to be Furnished.

- a) At completion of running tests two (2) complete sets of data listed below for all items of equipment shall be furnished for incorporation in Owner's Equipment Manual for the project:
  - b) Manufacturer's equipment outline drawings.
  - c) Manufacturer's performance curves for fans, pumps, and flow control devices and capacity tables for equipment.
  - d) Pertinent running test data; such as system test points, test point data, horsepower, RPM, FLA, etc., including final instrument set points and adjustments as left.

D. Temperature Controls.1. General.

- a) A complete system of automatic temperature control shall be provided. Complete system shall consist of the existing plus that which is necessary for proper function and operation.
- b) Wall plates for any control located in finished areas shall match finish of light switch plates in that same area.
- c) All conduit and wiring shall be installed in strict compliance with spec division 16, electrical.

2. Sequence of Operation.

- a) Refer to temperature control diagram on the drawings. With initial submittal and on record drawings include narrative of system operation describing start-up, automatic operation, and shut-down.

3. Nameplates.

- a) Each control device and starter shall be identified by black micarta nameplates with 1/2" white etched letters designating name of control. Controls located within conditioned space shall have micarta nameplates, in finish as selected by Architect, and labelled with 1/8" white etched letters.

4. Diagrams.

- a) Provide a complete plastic faced record diagram of the installed control system in a frame located and rigidly secured on the interior face of temperature control panel door or as directed by the Architect. Diagram shall bare date of Owner's acceptance of system.

5. Electrical Wiring.

- a) All electrical wiring and conduit in connection with the drawings shall be provided under Specification Section 15800. Any wiring not shown on the drawings but required for proper operation of the automatic temperature control system shall be performed under this Section.

6. Control Panels.

- a) Surface and/or flush mounted temperature control panels, with continuously hinged and latched door, shall be provided where shown on the drawings or required by the control system. All time clocks, relays, switches, and contactors, shall be mounted in the control panel, as indicated on the control diagrams. Each switch shall be given a black micarta nameplate with 1/2" white engraved letters indicating the piece of equipment it controls. Shop drawings of the panels shall be submitted for review before fabrication.

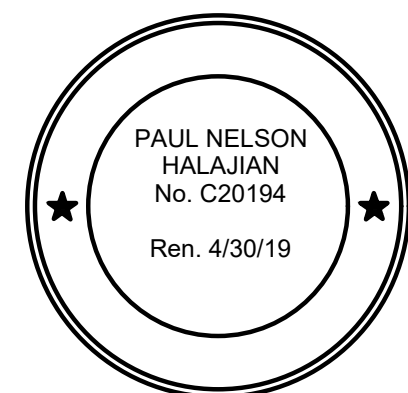
7. Room Thermostats.

- a) Provide UC Merced standard thermostats.
- b) All electrical wiring and conduit in connection with the automatic temperature control system shown on the drawings shall be provided by the controls contractor. Any wiring not shown on the drawings but required for proper operation of the automatic temperature control system shall be performed by the control manufacturer.



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# Kolligian Library 3W Renovation

5200 Lake Road, Merced, CA 95343

SHEET: Specifications

PROJECT:

UC Merced

DRAWING SET INFORMATION:

05.18.2018	Schematic Design
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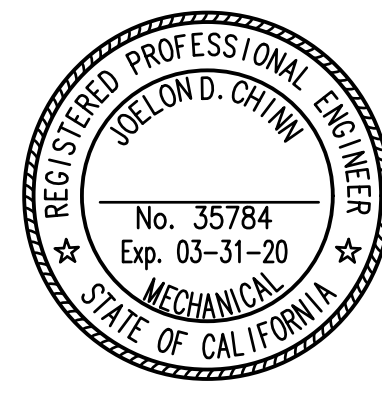
REVISIONS:


PROJECT NUMBER:

2018-19

SHEET NUMBER:

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