MANGINI

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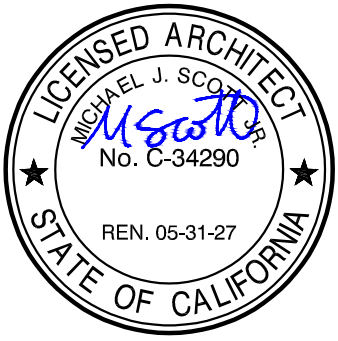
PROJECT MANUAL FOR:

NEW SNACK BAR/ ATHLETIC STORAGE BLDG. AT THREE RIVERS UNION ELEMENTARY SCHOOL

THREE RIVERS UNION SCHOOL DISTRICT
THREE RIVERS, TULARE COUNTY, CALIFORNIA



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SET NUMBER _____

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SECTION 00 1110 - INVITATION TO BID

1. **NOTICE TO CONTRACTORS:** The Three Rivers Union School District, acting by and through its Governing Board, hereinafter referred to as the Owner, will receive sealed bids for the award of contracts for the construction of the New Snack Bar/ Athletic Storage Building at Three Rivers Elementary School, 41932 Sierra Drive, Three Rivers, CA.

2. **SUBMITTAL OF BIDS:**
   - **.1** **Sealed Bids:** Sealed envelopes containing bids with subcontractor's list and other required attachments will be accepted by Three Rivers Union School District at its offices located at 41932 Sierra Drive, Three Rivers, CA 93271 on **October 8, 2026** before **3:00:00 pm PST** on the clock designated by the Owner or its representative as the bid clock.

   - **.2** **Completed DIR Information:** Within 24 hours of the opening of the bids, the apparent low bidder shall submit completed DIR information on the Subcontractor List to the Three Rivers Union School District at its offices located at 41932 Sierra Drive, Three Rivers, CA 93271.

3. **OPENING OF BIDS:** Bids will be opened and read aloud after **3:00:00 pm PST, October 8, 2026.**

4. **MANDATORY PRE-BID CONFERENCE:** A pre-bid conference has been scheduled for **September 24, 2026**, at **3:30 pm**, at the project site, Three Rivers Elementary School, 41932 Sierra Drive, Three Rivers, CA 93271, and will include the opportunity to inspect the site and may include dissemination of additional information in response to questions or otherwise. All bidders will be deemed to have notice of all conditions and information which bidders could have obtained by attending the pre-bid conference, including but not limited to any conditions in, at, and about the site, the building or buildings, if any, and any work that may have been done thereon. Bids will not be accepted from bidders who did not attend the pre-bid conference.

5. **DESCRIPTION OF WORK:** The Work includes an addition to an existing school campus located at Three Rivers Union School consisting of a single story wood frame, slab on grade Snack Bar/ Athletic Storage building and related on-site development.

6. **BASIS FOR BIDS:** Bids shall be on a lump sum basis.

7. **TIME OF COMPLETION:** The Work shall be completed within **150 calendar days** from the date of the Owner's Notice to Proceed.

8. **EXAMINATION AND PROCUREMENT OF CONTRACT DOCUMENTS:** Contract Documents have been prepared by Mangini Associates Inc. Documents may be examined and obtained at the Architect's office, 4320 West Mineral King Avenue, Visalia, CA 93291, (559) 627-0530, Monday through Thursday between 8 am and 5 pm and Friday between 8 am and 12 pm or at Dodge Data & Analytics, ConstructConnect, Tulare-Kings County Builders Exchange (Visalia), the Central California Builders Exchange (Fresno), Kern County Builders Exchange (Bakersfield), Builders Exchange of Stockton. The architect's contact for questions or RFI's is **Edgar Sanchez at edgar@mangini.us.**

   Digital plan sets are available in .pdf format for general contract bidders by contacting Bridgette Young at bridgette@mangini.us.

   Only bonafide **general contract bidders** may secure hard copies of the proposed Contract Documents from the Architect on the following basis:
   - **.1** Limited to 2 sets of specifications and drawings, upon payment of **$190.00** deposit per set payable to Mangini Associates Inc., completely refundable if sets are returned to the Architect in good condition within 7 calendar days after bid opening.
   - **.2** A non-refundable charge of **$20.00**, made by separate check, will be required for all sets requiring shipping and handling.

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.3 Additional complete sets may be purchased from the Architect at the price of 1.15 times the Architect's cost of reproduction and delivery.

.4 Specifications and drawings will also be issued to various Builders Exchanges for subcontractors' use or subcontractors may purchase complete sets from the Architect at the price of 1.15 times the Architect's cost of reproduction and delivery. **Purchased sets are non-refundable.**

.5 No partial sets or individual sheets will be issued or sold.

.6 Only plan holders and the listed exchanges will be notified of Addenda.

9. SUBSTITUTIONS: Pursuant to California Public Contract Code Section 3400, contractors and material suppliers shall submit requests to the Architect, not less than 10 days prior to bid (if material is to be included on final addendum), all data substantiating a request for substitution of materials. In order to be considered, substitutions of materials or equipment must comply with the requirements of specification Section 01 2500, including providing comparative data and samples.

10. BID SECURITY: Submit bid security with proposal, made payable to Owner, in amount of 10% of the Bid, in the form of certified check, bid bond, cashier's check or cash. Bid security will be retained until Agreement is signed and required bonds furnished. If any bidder refuses to sign the Agreement Form within 7 days after Award, the Owner will retain his bid security as liquidated damages. To enable compliance with California Code of Civil Procedure Section 995.311, each contractor shall provide, prior to Contract Award, a print-out of information from the Department of Insurance website http://www.insurance.ca.gov/ confirming the surety is an admitted surety insurer.

11. QUALIFICATION OF BIDDER: The Owner will not consider or accept any bids from contractors or subcontractors who are not licensed to do business in the State of California, in accordance with the California Public Contract Code of the State of California, providing for the licensing of contractors. In accordance with Section 3300 of said Code, the Contractor shall have a **Class B license** and shall maintain that license in good standing through Project completion and all applicable warranty periods.

12. AWARD: The Owner reserves the right to reject any and all bids and/or waive any informality in any bid received and/or determine in its discretion the responsibility of any bidder, and which bid is most advantageous to the Owner. Unless otherwise required by law, no bidder may withdraw his bid for a period of **60 days** after the date set for the opening thereof, or any authorized postponement thereof. The Owner reserves the right to take more than 60 days to make a decision regarding the rejection of bids or the award of the Contract.

13. PREVAILING WAGES: The Project is a public work and under California Labor Code Section 1770 et seq., the Director of the California Department of Industrial Relations ("DIR") has determined the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which the work is to be performed, for each craft, classification or type of worker needed to execute this Contract. Copies of the rates are on file at the Owner's principal office. It shall be mandatory upon the Contractor and on any subcontractor to pay not less than the said specified rates to all workers employed in the execution of this Agreement.

14. DIR REGISTRATION: The Owner will not accept any bid or enter into any contract without proof of the bidder's current registration to perform public work under Labor Code Section 1725.5. Bidders shall not accept any subbid or enter into any subcontract without proof of the subcontractor's current registration to perform public work under Labor Code Section 1725.5.

15. LABOR COMPLIANCE: Contractor and all subcontractors shall comply with Labor Code Section 1776. In accordance with Labor Code section 1771.4(a)(1), the Project is subject to compliance monitoring and enforcement by the DIR. The Contractor and each subcontractor shall furnish a certified copy of all payroll records directly to the Labor Commissioner on a monthly basis, unless directed by the Owner to furnish such records more often, and in the format prescribed by the Labor Commissioner.

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16. RETENTION FUND: The successful bidder will be allowed to substitute securities or establish an escrow in lieu of retainage, pursuant to Public Contract Code Section 22300, and as described in the Agreement Between Owner and Contractor and General Conditions.

17. REQUIRED CERTIFICATIONS: Bids must be accompanied by fully executed forms as described in Section 00 2110 Instructions to Bidders.

18. DSA OVERSIGHT PROCESS: The Contractor shall comply with the applicable requirements of the Division of State Architect ("DSA") Construction Oversight Process ("DSA Oversight Process"), including but not limited to (a) notifying the Project Inspector upon commencement and completion of each aspect of the work as required under DSA Form 156; (b) coordinating the Work with the Project Inspector's inspection duties and requirements; (c) submitting verified reports under DSA Form 6-C; and (d) coordinating with the Owner, Owner's Architect, any Construction Manager, any laboratories, and the Project Inspector to meet the DSA Oversight Process requirements without delay or added costs to the Project.

Dates Advertised: September 16, 2026 September 23, 2026

BY ORDER OF THE BOARD OF TRUSTEES OF
THREE RIVERS UNION SCHOOL DISTRICT

Kyle Daniska, Clerk of the Board

END OF SECTION 00 1110

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SECTION 00 2110 - INSTRUCTIONS TO BIDDERS

PART 1 - CONTRACT DOCUMENTS

1.1 Securing Documents: Secure copies of the Contract Documents at the office of the Architect upon the conditions set out in the Section 00 1110 - Invitation To Bid.

1.2 Examination of Documents and Site: Before submitting bid, carefully examine the Contract Documents and visit the site of the Project. Observe existing conditions and limitations under which the Work is to be performed and include in bid a sum to cover cost of all items necessary to perform the Work. Contractor will not be entitled to extra payment due to existing conditions, if such conditions could have been observed upon the required site visit and examination of Documents.

1.3 Interpretation of Contract Documents Prior to Bidding: In general, the Drawings show dimensions, position, and kind of construction, and the Specifications qualities and methods. Any work called for on the Drawings and not mentioned in the Specifications, or vice versa shall be furnished as though fully set forth in both. Work not particularly detailed, marked or specified shall be the same as similar parts that are detailed, marked or specified.

- **.1** It is the intent of the plans and specifications that the Contractor shall turn over to the Owner a complete job. Any work not specifically called for or specified, but necessary to comply with the intent of quality and completeness shall be performed as part of the contract.
- **.2** If any person contemplating submitting a bid for the construction of the Work is in doubt as to the true meaning of any part of the Contract Documents or finds discrepancies in or omissions from any part of the Contract Documents, he may submit to the Architect a written request for an interpretation thereof not later than 7 days before bids will be opened. **A Pre-Bid Request for Information form is included at the end of this Section.**
- **.3** Address all communications regarding this work to the Project Architect as shown on the cover page of the Project Manual.
- **.4** The person submitting the request will be responsible for its prompt delivery.
- **.5** **Any binding interpretation or correction of the Contract Documents will be made only by written Addendum** and will be mailed or delivered to each Bidder on record. The Owner will not be responsible for any other explanations or interpretation of the Contract Documents.

1.4 Substitutions: Contractors, subcontractors and/or material suppliers shall comply with the requirements set forth in Specification Section 01 2500 - Substitution Requirements. All requests for material substitutions shall be submitted with all required substantiating data, comparisons to the material specified, including samples and colors as needed to determine their acceptance. Failure to provide the required documentation is justification for rejection.

- **.1** Substitution Requests shall be submitted a minimum of 10 days prior to the bid (if material is to be included on the final addendum);
- **.2** or not more than 35 days after the award of the contract.
- **.3** Substitution Requests received greater than 35 days after the award shall be rejected.

1.5 Addenda: Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Contract Documents by additions, deletions, clarifications, or corrections.

PART 2 - BASIS FOR BIDS:

2.1 Lump Sum Bid: All bids shall be on a lump sum basis. Each bidder shall breakdown the lump sum into the items required on the bid form, if any.

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2.2 **Taxes:** Taxes shall be included in the bid prices. The Owner will pay only the State sales and use taxes. Federal excise taxes are not applicable to school districts.

2.3 **Alternates:** All alternates shall be bid by inserting the amount to be added or deducted in the appropriate space on the bid form. Alternates are described in Section 00 2410 - Scopes of Bids and on the drawings. Alternates are additive or deductive to the total lump sum bid. If no change in the base bid is required, enter "No Change.

PART 3 - BIDDING PROCEDURES

3.1 **Bid Form:** In order to receive consideration, make all bids in accordance with the following:

- **.1** Make bids on the form provided with all blanks filled in. Do not change form wording nor add words.
- **.2** All amounts shall be in words as well as in figures. Any discrepancy between the words and figures shall be resolved using the amount stated in words.
- **.3** The Bid Form shall be filled out in ink or be typewritten.
- **.4** A bid which is incomplete, incorrect or non-conforming, may be disregarded, in the sole discretion of the Board of Trustees.
- **.5** Changes in or additions to the bid form, recapitulations of the work bid upon, alternative proposals, or any other modification of the bid form which is not specifically called for in the Contract Documents may result in the Owner's rejection of the bid as not being responsive to the Invitation to Bid. Bids expressing exceptions or qualifications on Technical Specifications shall be disregarded as non-responsive.
- **.6** The bid submitted shall not contain erasures, interlineations, or other corrections unless each such correction is suitably authenticated by affixing in the margin immediately opposite the correction the surname or surnames of the persons signing the bid. Oral or telephonic modifications of any bid submitted will not be considered.
- **.7** Each bid shall be delivered in a separate opaque sealed envelope bearing on the outside, the name of the bidder, the bidder's address, and the name of the Project. Each envelope shall include all the documents required by these Instructions.
- **.8** Bids may not be modified after the designated time for bid opening. Bidders may withdraw and resubmit bids at any time prior to bid opening. No bid may be withdrawn after the bid opening.
- **.9** Late bids will be returned to Bidder unopened.
- **.10** Address bids to Owner and deliver to Owner on or before time set in Invitation to Bid. Enclose bid in sealed envelope bearing title of the Project and name of Bidder.
- **.11** It is the Bidder's responsibility to be certain his bid is received in time at the proper place.

3.2 **Execution of Forms:**

- **.1** Each bid must give the full business address of the bidder and must be signed by the bidder with his or her usual signature in longhand.
- **.2** Bids by partnerships must furnish the full names of all partners and must be signed in the partnership name by a general partner with authority to bind the partnership in such matters.
- **.3** Bids by corporations must be signed with the legal name of the corporation, followed by the signature and designation of the president, secretary, or other person authorized to bind the corporation in this matter. The name of each person signing shall also be typed or satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished.
- **.4** A bidder's failure to properly sign required forms may result in rejection of the bid.
- **.5** All bids must include the bidder's contractor's license number, classification, and expiration date.

3.3 **Bidder Submittal Envelope:** All responsive bidders shall provide the following items within the Bid Submittal Envelope:

- **.1** Bid Form
- **.2** Bidder's Bond
- **.3** Subcontractor List
- **.4** Non-Collusion Affidavit

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.5 Contractor's Certificate Regarding Workers Compensation
.6 Fingerprinting Notice and Acknowledgment
.7 Sufficient Funds Declaration
.8 Acknowledgment regarding Drug Free Workplace
.9 Acknowledgment regarding Alcoholic Beverage and Tobacco-Free Campus Policy
.10 Acknowledgment regarding No Contracting with Sanctioned Entities

3.4 Withdrawal of Bid: Bidder may withdraw his bid at any time prior to the scheduled time for opening. No Bidder may withdraw his bid for a period of **60 days** after the time and date of opening. All bids shall be subject to acceptance by Owner during this period.

3.5 Subcontractor List / DIR Information:

.1 Subcontractor List: Pursuant to the provisions of Section 4100 to 4113, inclusive, of the Public Contract Code of the State of California, every Bidder shall set forth the name and location of the place of business of each subcontractor who will perform work or labor in or about the construction of the Work or improvement in an amount in excess of 1/2 of one percent of the Bidder's total Base Bid. If the Bidder fails to specify a subcontractor for any portion of the work in excess of 1/2 of one percent of the Bidder's total Base Bid, the Bidder agrees to perform that portion of the Work.

.2 DIR Information: Pursuant to Labor Code section 1725.5, within 24 hours of the receipt of bids, every Bidder shall set forth the name, location of the place of business, contractor's license number, and DIR registration number of all subcontractors listed on the Subcontractor List submitted with the Bid. The Contractor and any proposed subcontractors shall not be qualified to submit a bid or to be listed in a bid proposal for the Project unless currently registered and qualified under Labor Code Section 1725.5 to perform public work.

PART 4 - BONDS, AGREEMENT, AND INSURANCE

4.1 Bid Security: Each bidder is required to submit with each bid, a cashier's check upon a solvent bank, or a Bid Bond in an amount equal to 10% of the Bid made payable to Owner. This bid security shall be given as a guarantee that the bidder will enter into the Agreement if awarded to him and **shall be declared forfeited as liquidated damages if he refuses to enter into said Agreement** upon request to do so by Owner. If the bidder fails or refuses to timely enter into the contract, the Owner reserves the right to declare the bid bond forfeited and to pursue all other remedies in law or equity relating to such breach including, but not limited to, seeking recovery of damages for breach of contract. Bid security will be returned to all unsuccessful bidders, and to each successful bidder upon the Owner's receipt of a satisfactory Performance Bond, Payment Bond, Policy of Insurance, Worker's Compensation Insurance Certificate, executed Agreement and any other document required by the Contract Documents prior to the execution of the Agreement by the Owner. Bid Bonds shall be executed on the form included in these specifications or a facsimile thereof. Any and all bonds required, whether Bid Bonds, Faithful Performance, Payment, or other bonds, shall be issued by a California admitted surety insurer.

4.2 Bid Security and Bond Requirements: Each successful bidder shall file with Owner, a Performance Bond and a Payment Bond, each in the amount of 100% of the Contract Sum. All bonds required, whether Bid Bonds, Performance, Payment, or other Bonds, shall be issued by a California admitted surety insurer. The Bid Bond, Performance Bond, and Payment Bond must be issued by the same admitted surety insurer. The payment and performance bonds required by these specifications will neither be accepted nor approved by the Owner unless the bonds are underwritten by an admitted surety The Owner further reserves the right to satisfy itself as to the acceptability of the surety and the form of bond. The apparent low bidder must submit together with the payment and performance bonds the following documents:

.1 The original, or a certified copy, of the unrevoked appointment, power of attorney, bylaws, or other instrument authorizing the person who executed the bond to do so.

.2 A certified copy of the certificate of authority of the insurer issued by the California Insurance Commissioner.

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.3 A financial statement of the assets and liabilities of the insurer to the end of the quarter calendar year prior to 30 days next preceding the date of the execution of the bond, in the form of an officers' certificate as defined in Corporations Code Section 173.

.4 If the surety insurer is not found to be an "admitted surety insurer" the bid shall be determined non-responsive and shall be rejected. If the surety insurer's assets do not exceed its liabilities in an amount equal to or in excess of the amount of the bond, subject to Section 12090 of the Insurance Code; or if the bidder fails to provide the specified documents; the bid may be determined non-responsive and may be rejected.

4.3 Form of Agreement: The bidder selected by the Owner shall be required to execute an Agreement in form and substance substantially identical to that included in this bidding package. The Agreement and other documents are subject to the approval of the Owner and its legal counsel. The successful bidder shall, within 7 days of notice of award of the contract, sign and deliver to the Owner the executed Agreement along with the bonds and certificates of insurance required by the contract documents. In the event the bidder to whom an award is made fails or refuses to execute the Agreement within 7 calendar days from the date of receiving notification that the contract has been awarded to the bidder, the Owner may declare the bidder's bid deposit or bond forfeited as damages caused by the failure of the bidder to enter into the contract, and may award the work to the next lowest responsible bidder, or may reject all bids and call for new bids.

4.4 Worker's Compensation Insurance: Bidder shall submit with his bid the Contractor's Certificate Regarding Worker's Compensation in the form provided by the Construction Documents. Contractor shall maintain for the duration of his work on this Project statutory Worker's Compensation Insurance.

4.5 Contractor's Insurance Coverage: Contractor shall maintain for the duration of the work required under the Agreement, all Insurance in the forms and minimum amounts shown in the Construction Agreement.

.1 Before an Agreement is executed by the Owner, the Contractor shall obtain all insurance policies required hereunder, including the "GENERAL LIABILITY - ADDITIONAL INSURED ENDORSEMENT"; shall obtain Owner's approval of insurance; and shall file policies of such insurance with Owner. Approval of the insurance shall not relieve or decrease the liability of Contractor.

.2 Policies of insurance shall contain transcripts from the policies authenticated by proper office of the insurer, evidencing in particular those insured, the amount of the insurance and the location of and the operations to which the insurance applies. The insurance required must be written by a company licensed in California.

.3 Contractor shall not cause any insurance policy to be canceled or permitted to lapse. Each insurance policy shall contain a clause stating that the policy shall not at any time during the construction period be canceled or reduced, restricted or limited until 30 days after written notice to the Owner and Architect by registered mail, return receipt requested.

PART 5 - CONSIDERATION OF BIDS

5.1 Award of Contract: The Contract shall be awarded to the lowest responsible and responsive bidder as interpreted by the Owner under California law and as specified herein. Rejection of any or all bids, to contract work with whomever and in whatever manner, to abandon work entirely, and/or to waive any informality in receiving of bids is reserved as the right of the Owner. Before the Contract is awarded, the Owner may at its sole discretion, require from the proposed Contractor further evidence of the reasonable qualifications of such contractor to faithfully, capably, and reasonably perform such proposed Contract and may consider such evidence before making its decision on the award of such proposed Contract.

5.2 Basis of Award: The lowest bid will be determined in the following manner:

.1 On the amount of the base bid only.

5.3 Execution of Agreement: The required form of Agreement is included in the Contract Documents. The awarded bidder shall execute Agreement within seven (7) days after mailing, faxing or delivery of the Notice of Award of

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Contract. Owner reserves the right, without any liability, to cancel the award of any bid for any reason at any time before the full execution of the Agreement between Owner and Contractor.

PART 6 - ADDITIONAL PROVISIONS

6.1 **Contractor License Required:** The Owner will not consider or accept any bids from contractors or subcontractors who are not licensed to do business in the State of California, in accordance with the Public Contract Code of the State of California, providing the licensing of contractors. Joint venture bidders shall possess a joint venture license. In accordance with Section 3300 of said Code, the Contractor shall be a **Class B license.**

6.2 **Construction Documents for Construction:** A reasonable number of plans and specifications for construction, as stated in 2.2.5 of the General Conditions, shall be **10 sets** furnished to the successful Contractor without charge. Additional sets will be furnished, upon request from the Contractor, at the Architect's cost of reproduction and delivery. All plans and specifications are the property of the Owner and are to be carefully used and returned to the Owner at the completion or cessation of the work or termination of the contract, and are not to be used on other work.

6.3 **Liquidated Damages:** Time is of the essence in the performance of this contract, and all work called for herein and all requirements shall be completed before the expiration of the date established in the Owner's Notice to Proceed. Failure to complete the Project, or applicable phases of the Project, within the date(s) and in the manner provided for by the Contract Documents, shall subject the Contractor to liquidated damages for each calendar day by which such completion is delayed beyond the applicable Date for Completion. For purposes of liquidated damages, the concept of substantial completion shall not constitute completion and is not part of the Contract Documents. The actual occurrence of damages and the actual amount of the damages which the Owner would suffer if the Project were not completed by the applicable Date for Completion are dependent upon many circumstances and conditions which could prevail in various combinations and, from the nature of the case, it is impracticable and extremely difficult to fix the actual damages. Damages that the Owner would suffer if completion is delayed include, but are not limited to, loss of the use of the Project, disruption of activities, costs of administration, supervision and the incalculable inconvenience and loss suffered by the public.

.1 **Step One Liquidated Damages:** Accordingly, the Parties agree that the following dollar figure shall be the amount of damages which the Owner shall directly incur upon failure of the Contractor to complete the Project, or applicable parts thereof, within the time specified, $1,000.00 for each calendar day by which completion of the Project, or applicable parts thereof, is delayed beyond the Date for Completion as adjusted by change orders. If the Contractor becomes liable under this Section, the Owner, in addition to all other remedies provided by law, shall have the right to withhold all retained percentages of payments and/or progress payments, and to collect the interest thereon, which would otherwise be or become due the Contractor until the liability of the Contractor under this Article has been finally determined. If the retained percentages and withheld progress payments are not sufficient to discharge all liabilities of the Contractor incurred under this Section, then the Contractor and its sureties shall continue to remain liable to the Owner for such liabilities until all such liabilities are satisfied in full. If the Owner accepts any work or makes any payment under this Agreement after a default by reason of delays, the payment or payments shall in no respect constitute a waiver or modification of any Agreement provisions regarding time of completion and liquidated damages.

.2 **Step Two Liquidated Damages:** Failure to close out the Project, or applicable phases of the Project, shall subject the Contractor to Step Two Liquidated Damages for each calendar day by which such completion is delayed beyond 65 days of the Notice of Completion. Damages that the Owner would suffer if project close out is delayed include, but are not limited to, disruption of activities, costs of administration, supervision and professional fees. Accordingly, the Parties agree that the following dollar figure shall be the amount of damages which the Owner shall directly incur upon failure of the Contractor to complete the Project, or applicable parts thereof, within the time specified, $250.00 for each calendar day by which completion of the Project, or applicable parts thereof, is delayed beyond the Date for Notice of Completion. If the Contractor becomes liable under this Section, the Owner, in addition to all other remedies provided by law, shall have the

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right to withhold all retained percentages of payments and/or progress payments, and to collect the interest thereon, which would otherwise be or become due the Contractor until the liability of the Contractor under this Article has been finally determined.

6.4 Denial of Right to Bid: Contractors or subcontractors who have violated state law governing public works shall be denied the right to bid on this public work contract as set forth in California Labor Code Section 1777.7. In accordance with Public Contract Code Section 6109, with respect to subcontractors which are ineligible to perform work on public works projects pursuant to Labor Code Section 17771.1 or 1777.7:

.1 The Contractor shall not allow any such subcontractor to work on this project.

.2 The Contractor shall repay to the Owner any money paid to any such subcontractor allowed to work on this project.

.3 The Contractor shall pay the wages of the workers of any such subcontractor allowed to work on this project.

6.5 DIR Registration: The Contractor and any proposed subcontractors shall not be qualified to submit a bid or to be listed in a bid proposal for the Project unless currently registered and qualified under Labor Code section 1725.5 to perform public work as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code.

END OF SECTION 00 2110

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MANGINI

MANGINI ASSOCIATES INC.
4320 West Mineral King Avenue
Visalia, California 93291
(559) 627-0530

www.mangini.us

PRE-BID REQUEST FOR INFORMATION

TO: **Mangini Associates Inc.** **DATE:**
Attn: **CONTRACTOR'S RFI NO.:**
ARCHITECT'S RFI NO.:
PROJECT: **PROJECT NO.:**
DSA APPL. NO.:

Subject:
Plan/Spec. Ref:
Question:

Suggestion:

Attachments:

By: **Company:** **Title:**
Phone: **Fax:** **Email:**

Response:

☐ Included in Addendum No.:
☐ Not Included in Future Addendum

By: **Title:**
MANGINI ASSOCIATES INC.

CC:

SECTION 00 2410 - SCOPES OF BIDS

1. **GENERAL:** This Section is intended as clarification of the bids required in Section 00 4110 - Bid Form. Should bidders not understand the requirements of the bid, it is their responsibility to contact the Architect within seven calendar days prior to the bid opening to obtain a clarification of such items. The address and telephone numbers of the Architect and each of the Consultants are on the cover sheet for your convenience.

2. **BIDS REQUIRED:** Bids for this project shall include all labor, materials, tax, freight, permits, fees, etc., required to complete the project as specified and indicated in the Drawings and Specifications, including the General and Supplemental Conditions to the Contract.

A. **BASE BID WORK:** All work required to satisfactorily complete the work indicated in the Drawings and Project Manual approved by the Division of the State Architect.

END OF SECTION 00 2410

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SECTION 00 3100 - AVAILABLE PROJECT INFORMATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes information available to the bidders and the use of such information.

1.2 SOILS INVESTIGATION REPORT

A. A soils investigation report has been prepared for the site by **Krazan & Associates, Inc., Report No. 052-26006, dated March 12, 2026.**
   1. The soils investigation report may be inspected at the office of the Architect.
   2. Copies may be obtained upon request.

B. Use of Data:
   1. This report was obtained only for the Architect's guidance in the design of this Project and is not a part of the Contract Documents.
   2. The report is available to bidders, for information only, so that bidders have full disclosure of all information available to the Owner and Architect with respect to subsurface conditions at the Site. The report is not a warranty of subsurface conditions. Information is site specific as related to the boring locations noted.
   3. Bidders should visit the site and acquaint themselves with existing conditions.
   4. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Architect and the Owner.

C. Cautions to Contractor:
   1. The report of subsurface conditions represents only those points where soil borings and other investigations were made in locations indicated in the report. The report does not reflect specific variations that may occur between these data collection points.
   2. Information indicated relative to soil moisture content and water table elevations represent conditions which existed at the time of the testing only and are subject to daily and/or seasonal variations. The Contractor shall not use this information as a fixed basis for bidding as the Contractor is expected to anticipate fluctuations in these areas and anticipate adjustments in his procedures to accommodate such.

D. A geotechnical engineer will be retained by the Owner to observe performance of work in connection with excavating, trenching, filling, backfilling, and grading, and to perform compaction and moisture tests.

1.3 OWNER'S RECORD DRAWINGS

A. The Owner is in possession of record drawings of existing site improvements and buildings. These drawings may be inspected at the office of the Owner.

B. Use of Owner's Record Drawings:
   1. These drawings, along with visual observations, were used for the Architect's guidance in the design of this Project, and are not a contract document.
   2. These drawings are available to bidders, for information only, so that bidders have full disclosure of all information available to the Owner and Architect with respect to existing improvements at the Site. These drawings are not a warranty of subsurface or hidden conditions.
   3. Bidders should visit the site and acquaint themselves with existing conditions.

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4. Prior to bidding, bidders may make their own investigations to satisfy themselves as to existing conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Architect and the Owner.

C. Cautions to Contractor: These drawings represent only those conditions existing at the time the drawings were prepared and may not reflect changes or construction subsequent to preparation of the drawings.

END OF SECTION 00 3100

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SECTION 00 3110 - PRELIMINARY SCHEDULES

1. START OF WORK: Do not start work until receipt of written notice from Architect to proceed.

2. PROJECT SCHEDULE:

.1 Anticipated Award Date: October 14, 2026. This date is for preliminary scheduling only; Owner does not guarantee this date.

.2 Anticipated Notice to Proceed Date: October 26, 2026. This date is for preliminary scheduling only; Owner does not guarantee this date.

.3 Time for Completion: Complete all Work within **150 calendar days,** commencing with the date established in the written notice from Owner to proceed, and ending with the date of Notice of Completion.

3. OWNER OCCUPANCY

.1 The schedule is intended as a maximum time frame and should the Contractor be able to expedite the Work, the Owner and Architect will assist in advancing within the terms of the Contract.

.2 The project will be in progress while students and staff are on site.

END OF SECTION 00 3110

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SECTION 00 4110 - BID FORM

BID TO: **Three Rivers Union School District**
41932 Sierra Drive
Three Rivers, CA 93271

BID FROM: _____

_____

_____

Phone: _____ Fax: _____

Email: _____

PROJECT: **NEW SNACK BAR/ ATHLETIC STORAGE BLDG. AT THREE RIVERS ELEMENTARY SCHOOL**

BASIS FOR BIDS: All work required for construction of New Snack Bar/ Athletic Storage Bldg. at Three Rivers Elementary School, located at 41932 Sierra Drive, Three Rivers, California.

The undersigned, having carefully examined the location of the proposed work, the local conditions of the place where the work is to be performed, the Invitation to Bid, the Instructions to Bidders, the Drawings, the Specifications, the Agreement, the General Conditions, all addenda, and all Contract Documents for this Project, proposes and agrees to be bound by all terms and conditions of the complete contract and agrees to perform, within the time stipulated, the contract, including all of its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, utility and transportation services necessary to perform the contract and complete in a good workmanlike manner all of the work required, including sheeting, shoring and bracing, or equivalent method for protection of life and limb in trenches and open excavation in conformance with applicable safety orders, in connection with the Project called for by them for the entire order in strict conformity with the Contract Documents.

ADDENDA: The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

Addendum #	_____	Dated	_____	Addendum #	_____	Dated	_____
Addendum #	_____	Dated	_____	Addendum #	_____	Dated	_____
Addendum #	_____	Dated	_____	Addendum #	_____	Dated	_____

BASE BID: Lump Sum price for construction of the Base Bid portions of the Project (in accordance with the Contract Documents):

_____

_____ Dollars ($_____)

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CASH ALLOWANCES:

.3 A cash allowance of **$25,000.00 for repair of existing sprinkler irrigation system and landscaping**, as described in Section 01 2100 - Cash Allowances, is included in the Base Bid.

CONDITIONS

Bid Form:

.1 Bidder agrees that he/she has checked carefully all words and figures inserted in the Bid Form and that he/she is solely responsible for errors or omissions therein.

.2 Forms submitted with incomplete bid amounts or signature are subject to non-acceptance by Owner. Amounts shall be stated in writing and figures.

.3 Owner reserves the right to reject any or all Bids, waive any informality in any Bid, determine in his own discretion the responsibility of any Bidder, and determine which Bid is most advantageous to Owner.

Bid Form Attachments: Bid Form shall be accompanied the following, using forms included in the Project Manual:

.1 Bid Form
.2 Bidder's Bond
.3 Subcontractor List / DIR Information
.4 Non-Collusion Affidavit
.5 Contractor's Certificate Regarding Workers Compensation
.6 Fingerprinting Notice and Acknowledgment
.7 Sufficient Funds Declaration
.8 Acknowledgment regarding Drug Free Workplace
.9 Acknowledgment regarding Alcoholic Beverage and Tobacco-Free Campus Policy
.10 Acknowledgment regarding No Contracting with Sanctioned Entities
.11 CARB Compliance Declaration
.12 Cost Breakout for Hardcourts

Time for Completion: Bidder agrees to complete all Work within **150 calendar days,** commencing with the date established in the written notice from Owner to proceed, and ending with the date of Substantial Completion.

Substitutions: Bidder agrees he/she has reviewed the substitution requirements of Sections 00 2110 and 01 2500 and shall comply with such requirements.

Execution of Agreement: Bidder agrees that if its bid or bids are accepted by Owner, Bidder will execute the Agreement Form provided and furnish the required Bonds and Insurance Certificates within 7 calendar days after date of written Notice of Award by Owner. The undersigned further agrees that in case of default in executing these documents within the time fixed, the proceeds of the check or bond, accompanying this bid, shall become the property of the Owner.

Withdrawal of Bid: Bidder agrees that his/her Bid may not be withdrawn for a period of **60 calendar days** after Bid Opening date.

Step One Liquidated Damages: Should the Contractor fail to complete this contract, and/or each phase of the work provided therein within the time fixed for such completion, pursuant to Government Code Section 53069.85, said Contractor shall forfeit and pay (or the Owner may deduct the amount thereof from any money due or to become due to the Contractor) the sum of **One Thousand Dollars ($1,000.00)** per calendar day as Step One Liquidated Damages. In accordance with the provisions of Government Code Section 4215, the Contractor shall not be assessed liquidated damages where delay is caused by failure of the Owner or the owner of the utility to provide for the removal or relocation of utility facilities, but only if such facilities are not identified in the plans and specifications.

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Step Two Liquidated Damages: Should the Contractor fail to complete and closeout this contract within 65 days of the Notice of Completion, pursuant to Government Code Section 53069.85, said Contractor shall forfeit and pay (or the Owner may deduct the amount thereof from any money due or to become due to the Contractor) the sum of **Two Hundred and Fifty Dollars ($250.00)** per calendar day as Step Two Liquidated Damages, in addition to amounts which may be assessed for Step One liquidated damages.

Bidder's Representation as to Bids: Bidder certifies that his/her Bid is genuine and is not sham or collusive, or made in the interest or in behalf of any Bidder not herein named, and that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a sham bid, or any other possible bidder to refrain from bidding, and that Bidder has not in any manner sought by collusion to secure for himself an advantage over any other Bidder.

Contractor's License: Contractors and subcontractors are required by law to be licensed and regulated by the Contractors' State License Board, which has jurisdiction to investigate complaints against contractors if a complaint is filed within 4 years of the date of the alleged violation. A complaint regarding alleged act or omission pertaining to structural defects must be filed within 10 years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, 3132 Bradshaw Road, Sacramento, California. Mailing address: P.O. Box 26000, Sacramento, California 95826.

Worker's Compensation: The bidder hereby certifies that it is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and will comply with such provisions before commencing the performance of the work of this contract.

Authorized Signature: Bidder states that the signature below is of a person authorized to bind the Bidder to this Bid and the Agreement.

Wage Rates: The Bidder agrees to comply with the prevailing wage laws as set forth in Labor Code sections 1770-1780 unless an applicable federal labor law imposes a higher wage or stricter requirement, in which case the higher wage or stricter requirement will apply. The Contractor agrees to be responsible for the compliance by all subcontractors with Labor Code Section 1776. Pursuant to Labor Code Section 1770, the Bidder shall, as a penalty to the Owner, forfeit not more than $50 for each calendar day or portion thereof, for each worker paid less than the prevailing rates as determined by the director for the work or craft in which the worker is employed. The amount of this penalty shall be determined by the California State Labor Commissioner and shall be based on consideration of the Contractor's mistake, inadvertence, or neglect in failing to pay the correct rate of prevailing wages, or the previous record of the Contractor in meeting his or her prevailing wage obligations, or the Contractor's willful failure to pay the correct rates of prevailing wages. In accordance with the Public Contract Code Section 6109, with respect to subcontractors which are ineligible to perform work on public works projects pursuant to Labor Code Section 1777.1 or 1777.7:

.1 The Bidder shall not allow any such subcontractor to work of this project.
.2 The Bidder shall repay to the Owner any money paid to any such subcontractor allowed to work on this project.
.3 The Bidder shall pay the wages of the workers of any such subcontractor allowed to work on this project.

Copies of the prevailing rate of per diem wages are on file at the principal office of the Owner, and are available to any interested party upon request, pursuant to Labor Code Section1773 and Section1773.2. **The Bidder shall comply with provisions of the Labor Code Section 1775 regarding penalties for failure to pay prevailing wages.**

DIR Registration: The Contractor and any proposed subcontractors shall not be qualified to submit a bid or to be listed in a bid proposal for the Project unless currently registered and qualified under Labor Code section 1725.5 to perform public work as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code.

Labor Compliance Program: Contractor and all subcontractors shall comply with Labor Code section 1776. In accordance with Labor Code section 1771.4(a)(1), the Project is subject to compliance monitoring and enforcement by the DIR. The Contractor and each subcontractor shall furnish a certified copy of all payroll records directly to the Labor Commissioner on

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a monthly basis, unless directed by the Owner to furnish such records more often, and in the format prescribed by the Labor Commissioner.

If the bidder is a corporation, the undersigned hereby represents and warrants that the corporation is duly incorporated and is in good standing in the State of _____ and that _____(Name), whose title is _____, is authorized to act for and bind the corporation.

The undersigned declares under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____

_____
Bidder Name (type or print)

_____
Authorized Signator (type of print)

_____
Signature

_____
Organization (individual, partnership, or corporation)

_____
Address

_____
Contractor's License Number Class

_____
Contractor's License Expiration Date

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SUBCONTRACTOR LIST / DIR INFORMATION

Public Contract Code Section 4100 / Labor Code Section 1725.5

Contractor: _____

Subcontractor List: Subcontracting under this Agreement shall be governed by the California "Subletting and Subcontracting Fair Practices Act" (Chapter 4, commencing at Section 4100, Division 2, Part 1 of the Public Contract Code of the State of California and any amendments thereof). In accordance with the provisions of Public Contract Code Section 4104, each bidder shall list below the name and location of place of business for each subcontractor licensed by the State of California who, under subcontract to the prime contractor, will perform a portion of the contract work in an amount in excess of one-half (1/2) of one percent (1%) of the total contract price. In each such instance the nature of the work to be sublet shall be described.

If a prime contractor fails to specify a subcontractor or if a prime contractor specifies more than one subcontractor for the same portion of work to be performed under the contract in excess of one-half (1/2) of one percent (1%) of the prime contractor's total bid, Contractor shall be deemed to have agreed that Contractor alone shall perform that portion.

No prime contractor whose bid is accepted shall (a) substitute any subcontractor, (b) permit any subcontractor to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original subcontractor listed in the original bid, or (c) sublet or subcontract any portion of the work in excess of one-half (1/2) of one percent (1%) of the prime contractor's total bid as to which the original bid did not designate a subcontractor, except as authorized in the Subletting and Subcontracting Fair Practices Act. Subletting or subcontracting of any portion of the work in excess of one-half (1/2) of one percent (1%) of the prime contractor's total bid as to which no subcontractor was designated in the original bid shall only be permitted in cases of public emergency or necessity, only after a finding reduced to writing as a public record of the authority awarding this contract setting forth the facts constituting the emergency or necessity.

DIR Information: Pursuant to Labor Code section 1725.5, Within 24 hours of the receipt of bids, the apparent low bidder shall provide the contractor's license number, and DIR registration number of all subcontractors listed on the Subcontractor List submitted with the Bid. The Contractor and any proposed subcontractors shall not be qualified to submit a bid or to be listed in a bid proposal for the Project unless currently registered and qualified under Labor Code Section 1725.5 to perform public work.

An inadvertent error in listing a subcontractor who is not registered under Labor Code Section 1725.5 shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that either: the subcontractor is registered prior to the bid opening; or the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5(a)(2)(E), if applicable, within 24 hours after the bid opening; or the subcontractor is replaced by another registered subcontractor under Public Contract Code Section 4107. Failure of a listed subcontractor to be registered shall be grounds under Public Contract Code Section 4107 for the Contractor, with the Owner's consent, to substitute a registered subcontractor for the unregistered subcontractor.

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Submit with Bid - Contractor: _____			**Submit within 24 Hours of Bid**	
Portion of Work	**Subcontractor Name**	**Subcontractor Location**	**License Number**	**DIR Registration Number**

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Submit with Bid - Contractor: _____			Submit within 24 Hours of Bid	
Portion of Work	**Subcontractor Name**	**Subcontractor Location**	**License Number**	**DIR Registration Number**

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Submit with Bid - Contractor: _____			**Submit within 24 Hours of Bid**	
Portion of Work	**Subcontractor Name**	**Subcontractor Location**	**License Number**	**DIR Registration Number**

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NON-COLLUSION AFFIDAVIT
Public Contract Code Section 7106

To: _____

Project: _____

_____

The undersigned declares:

I am the _____ [Title] of _____ [Company], the party making a bid proposal (bid) on the above-referenced Project. The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

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 is executed on _____ , 2026, at _____ [City], California.

_____
Date

_____
Printed Name

_____

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Signature

CONTRACTOR'S CERTIFICATE REGARDING WORKER'S COMPENSATION
Labor Code Section 3700

California Labor Code Section 3700, in relevant part, provides that:

Every employer except the state shall secure the payment of compensation in one or more of the following ways:

(a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this state.

(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure either as an individual employer or as one employer in a group of employers. Said certificate may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees, … "

I am aware of the provisions of the Labor Code section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract. I shall supply the Owner with certificates of insurance evidencing that Workers' Compensation Insurance is in effect and providing that the Owner will receive thirty (30) days' notice of cancellation.

_____
Proper Name of Company

_____
Printed Name

_____
Signature

In accordance with Article 5 [commencing at Section 1860], Chapter 1, Part 7, Division 2 of the Labor Code, the above certificate must be signed and filed with the awarding body prior to performing any work under this contract.

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FINGERPRINTING NOTICE AND ACKNOWLEDGMENT
Education Code Section 45125.2

Business entities entering into contracts with the Owner for the construction, reconstruction, rehabilitation or repair of a facility may comply with Education Code section 45125.2, in which case it would not have to comply with Section 45125.1. If such an entity is not compliant with Section 45125.2, then it must comply with Section 45125.1. Such entities are responsible for ensuring full compliance with the law and should therefore review all applicable statutes and regulations. Therefore, the following information is provided simply to assist you with compliance with the law:

1. The Owner has determined that your employee(s), or you as a sole proprietor, will have more than limited contact with students, therefore the law requires that you must use one or more of the following methods to ensure the safety of pupils (Education Code §45125.2(a)):

   a. Install a physical barrier at the work site to limit contact with pupils.
   b. If you are not a sole proprietorship, have one of your employees, whom the Department of Justice has ascertained has not been convicted of a violent or serious felony (see ***Attachment A*** to this Notice and Acknowledgement), continually monitor and supervise all of your employees. For the Department of Justice to so ascertain, your employee may submit fingerprints to the Department of Justice pursuant to Education Code section 45125.1(a).
   c. Arrange, with Owner's approval, for surveillance of your employees by Owner's personnel.

   Prior to commencing the Work, you shall submit the Independent Contractor Student Contact Form (see ***Attachment B*** to this Notice and Acknowledgement) to the Owner, which will indicate which of the above methods you will use. ***Attachment B*** is not a Bid Form Attachment required as a part of the bid package.

2. If you are providing services in an emergency or exceptional situation, you are not required to comply with Education Code section 45125.2, above. An "emergency or exceptional" situation is one in which pupil health or safety is endangered or when repairs are needed to make a facility safe and habitable. Owner shall determine whether an emergency or exceptional situation exists. (Education Code §45125.2(d).)

3. If you use one or more of the three methods in Section 1 (above), you are not required to comply with Education Code section 45125.1. (Education Code §45125.2(b).)

I have read the foregoing and agree to comply with the requirements of this notice and Education Code sections 45125.1 and 45125.2 as applicable.

_____ _____
Date Signature

_____ _____
Printed Name Title

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ATTACHMENT A

FINGERPRINTING NOTICE AND ACKNOWLEDGMENT

Under Education Code section 45125.1, no employee of a contractor or subcontractor who has been convicted of or has criminal proceedings pending for a violent or serious felony may come into contact with any student. A violent felony is any felony listed in subdivision (c) of Section 667.5 of the Penal Code. Those felonies are presently defined as:

(1) Murder or voluntary manslaughter.
(2) Mayhem.
(3) Rape as defined in paragraph (2) or (6) of subdivision (a) of Section 261 or paragraph (1) or (4) of subdivision (a) of Section 262.
(4) Sodomy as defined in subdivision (c) or (d) of Section 286.
(5) Oral copulation as defined in subdivision (c) or (d) of Section 288a.
(6) Lewd or lascivious act as defined in subdivision (a) or (b) of Section 288.
(7) Any felony punishable by death or imprisonment in the state prison for life.
(8) Any felony in which the defendant inflicts great bodily injury on any person other than an accomplice which has been charged and proved as provided for in Section 12022.7, 12022.8, or 12022.9 on or after July 1, 1977, or as specified prior to July 1, 1977, in Sections 213, 264, and 461, or any felony in which the defendant uses a firearm which use has been charged and proved as provided in subdivision (a) of Section 12022.3, or Section 12022.5 or 12022.55.
(9) Any robbery.
(10) Arson, in violation of subdivision (a) or (b) of Section 451.
(11) Sexual penetration as defined in subdivision (a) or (j) of Section 289.
(12) Attempted murder.
(13) A violation of Section 12308, 12309, or 12310.
(14) Kidnapping.
(15) Assault with the intent to commit a specified felony, in violation of Section 220.
(16) Continuous sexual abuse of a child, in violation of Section 288.5.
(17) Carjacking, as defined in subdivision (a) of Section 215.
(18) Rape, spousal rape, or sexual penetration, in concert, in violation of Section 264.1.
(19) Extortion, as defined in Section 518, which would constitute a felony violation of Section 186.22 of the Penal Code.
(20) Threats to victims or witnesses, as defined in Section 136.1, which would constitute a felony violation of Section 186.22 of the Penal Code.
(21) Any burglary of the first degree, as defined in subdivision (a) of Section 460, wherein it is charged and proved that another person, other than an accomplice, was present in the residence during the commission of the burglary.
(22) Any violation of Section 12022.53.
(23) A violation of subdivision (b) or (c) of Section 11418.

A serious felony is any felony listed in subdivision (c) Section 1192.7 of the Penal Code. Those felonies are presently defined as:

(1) Murder or voluntary manslaughter;
(2) Mayhem;
(3) Rape;
(4) Sodomy by force, violence, duress, menace, threat of great bodily injury, or fear of immediate and unlawful bodily injury on the victim or another person;
(5) Oral copulation by force, violence, duress, menace, threat of great bodily injury, or fear of immediate and unlawful bodily injury on the victim or another person;
(6) Lewd or lascivious act on a child under the age of 14 years;
(7) Any felony punishable by death or imprisonment in the state prison for life;
(8) Any felony in which the defendant personally inflicts great bodily injury on any person, other than an accomplice, or any felony in which the defendant personally uses a firearm;
(9) Attempted murder;
(10) Assault with intent to commit rape, or robbery;
(11) Assault with a deadly weapon or instrument on a peace officer;

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(12) Assault by a life prisoner on a non-inmate;
(13) Assault with a deadly weapon by an inmate;
(14) Arson;
(15) Exploding a destructive device or any explosive with intent to injure;
(16) Exploding a destructive device or any explosive causing bodily injury, great bodily injury, or mayhem;
(17) Exploding a destructive device or any explosive with intent to murder;
(18) Any burglary of the first degree;
(19) Robbery or bank robbery;
(20) Kidnapping;
(21) Holding of a hostage by a person confined in a state prison;
(22) Attempt to commit a felony punishable by death or imprisonment in the state prison for life;
(23) Any felony in which the defendant personally used a dangerous or deadly weapon;
(24) Selling, furnishing, administering, giving, or offering to sell, furnish, administer, or give to a minor any heroin, cocaine, phencyclidine (PCP), or any methamphetamine-related drug, as described in paragraph (2) of subdivision (d) of Section 11055 of the Health and Safety Code, or any of the precursors of methamphetamines, as described in subparagraph (A) of paragraph (1) of subdivision (f) of Section 11055 or subdivision (a) of Section 11100 of the Health and Safety Code;
(25) Any violation of subdivision (a) of Section 289 where the act is accomplished against the victim's will by force, violence, duress, menace, or fear of immediate and unlawful bodily injury on the victim or another person;
(26) Grand theft involving a firearm;
(27) Carjacking;
(28) any felony offense, which would also constitute a felony violation of Section 186.22;
(29) assault with the intent to commit mayhem, rape, sodomy, or oral copulation, in violation of Section 220;
(30) throwing acid or flammable substances, in violation of Section 244;
(31) assault with a deadly weapon, firearm, machine gun, assault weapon, or semiautomatic firearm or assault on a peace officer or firefighter, in violation of Section 245;
(32) assault with a deadly weapon against a public transit employee, custodial officer, or school employee, in violation of Sections 245.2, 245.3, or 245.5;
(33) discharge of a firearm at an inhabited dwelling, vehicle, or aircraft, in violation of Section 246;
(34) commission of rape or sexual penetration in concert with another person, in violation of Section 264.1;
(35) continuous sexual abuse of a child, in violation of Section 288.5;
(36) shooting from a vehicle, in violation of subdivision (c) or (d) of Section 12034;
(37) intimidation of victims or witnesses, in violation of Section 136.1;
(38) criminal threats, in violation of Section 422;
(39) any attempt to commit a crime listed in this subdivision other than an assault;
(40) any violation of Section 12022.53;
(41) a violation of subdivision (b) or (c) of Section 11418; and
(42) any conspiracy to commit an offense described in this subdivision.

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ATTACHMENT B

INDEPENDENT CONTRACTOR STUDENT CONTACT FORM

Contractor Name: _____
Supervisor/Foreman Name: _____
Start Date: _____
Completion Date: _____
Location of Work: _____
Hours of Work: _____
Length of Time on Grounds: _____
Number of Employees on the Job: _____

Yes No
[ ] [ ] Employees or sole proprietor will have more than limited contact with students as determined by Owner, or if by Contractor, please explain:

_____

_____

If yes, the following steps will be taken to ensure student safety (check):

[ ] A physical barrier will be installed at the worksite to limit contact with pupils.

[ ] Employees (if not a sole proprietorship) will be continually monitored and supervised by an employee who has not been convicted of a violent or serious felony.

Name of Supervising Employee:

_____

Date of Department of Justice verification that supervising employee has not been convicted of a violent or serious felony:

_____

Name of employee who is the custodian of the Department of Justice verification information:

_____

[ ] Owner agrees: Employees or sole proprietor will be surveilled by Owner's personnel.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

_____ _____
Date Signature

_____ _____
Printed Name Title

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SUFFICIENT FUNDS DECLARATION
Labor Code Section 2810

To: _____

Project: _____

_____

I, _____[Bidder Name], declare that I am the _____[Title] of _____ [Company], the entity making a bid for the above-referenced Project, and that the bid submitted by _____ [Company] includes sufficient funds to permit _____ [Company] and all subcontractors to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wages.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____,20

Signature: _____

Print Name: _____

Print Title: _____

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CONTRACTOR'S CERTIFICATE REGARDING DRUG-FREE WORKPLACE

This Drug-Free Workplace Certification form is required from all successful bidders pursuant to the requirements mandated by Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any State agency must certify that it will provide a drug-free workplace by performing certain specified acts. In addition, the Act provides that each contract or grant awarded by a State agency may be subject to suspension of payments or termination of the contract or grant, and the Contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

Pursuant to Government Code section 8355, every person or organization awarded a contract or grant from a State agency shall certify that it will provide a drug-free workplace by doing all of the following:

1. Publishing a statement, notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace, and specifying actions which will be taken against employees for violations of the prohibition.
2. Establishing a drug-free awareness program to inform employees about all of the following:
   a. The dangers of drug abuse in the workplace;
   b. The person's or organization's policy of maintaining a drug-free workplace;
   c. The availability of drug counseling, rehabilitation and employee-assistance programs; and
   d. The penalties that may be imposed upon employees for drug abuse violations;
3. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required by subdivision (a) and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will (a) publish a statement notifying employees concerning the prohibition of controlled substance at the workplace, (b) establish a drug-free awareness program, and (c) require each employee engaged in the performance of the contact be given a copy of the statement required by section 8355(a) and require such employee agree to abide by the terms of that statement.

I also understand that if the Owner determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of Section 8355, that the contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of Section 8350 et seq.

I acknowledge that I am aware of the provisions of Government Code section 8350 et seq. and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990.

_____ _____

Date Contractor

By: _____

Signature

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CONTRACTOR'S CERTIFICATE REGARDING ALCOHOLIC BEVERAGE AND TOBACCO-FREE CAMPUS POLICY

The Contractor agrees that it will abide by and implement the Owner's Alcoholic Beverage and Tobacco-Free Campus Policy, which prohibits the use of alcoholic beverages and tobacco products, of any kind and at any time, in buildings owned or leased by Owner, on Owner's property and in Owner's vehicles. The Contractor shall procure signs stating "ALCOHOLIC BEVERAGE AND TOBACCO USE IS PROHIBITED" and shall ensure that these signs are prominently displayed in all entrances to school property at all times.

_____ _____
Date Contractor

By: _____
Signature

CONTRACTOR CERTIFICATION REGARDING SANCTIONED ENTITIES & IRAN CONTRACTING ACT

_____ ("Contractor") certifies as follows:

1. Contractor is not an entity under any form of sanction imposed by the United States of America, or the State of California, and is not listed as such by the U.S. Department of State (a "Sanctioned Entity"), which list may be referenced at: https://sanctionssearch.ofac.treas.gov/ or
https://www.treasury.gov/ofac/downloads/ssi/ssilist.pdf.
Further, Contractor is not an Affiliate (any person or entity directly or indirectly controlling; controlled by or under common control with Contractor; owned in whole or in part by Contractor; that owns any interest in Contractor, in whole or in part; that is a current creditor or debtor to Contractor) of any Sanctioned Entity.
2. Contractor shall exercise all due diligence, including, without limitation, consulting the U.S. Department of State list of sanctioned entities, which may be referenced at https://sanctionssearch.ofac.treas.gov or https://www.treasury.gov/ofac/downloads/ssi/ssilist.pdf to ensure Contractor is not currently party to any contract with, and shall not enter into any contractual relationship with any Sanctioned Entity during the term of any agreement by and between Contractor and Owner or in relation to any agreement by and between Contractor and Owner.
3. Pursuant to Public Contract Code 2204, Contractor affirms that the official named below certifies they are duly authorized to execute this certification on behalf of the Contractor/financial institution identified below, and the Contractor/financial institution identified below is not on the current list of persons engaged in investment activities in Iran created by the California Department of General Services and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person/vendor, for 45 days or more, if that other person/vendor will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by California Department of General Services.

_____ _____
Date Contractor

By: _____ _____
Signature Title

_____
Federal Tax Identification Number

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CARB COMPLIANCE DECLARATION

To: _____

Project: _____

_____

CALIFORNIA AIR RESOURCES BOARD ("CARB") https://ww2.arb.ca.gov/

For any project awarded on or after January 1, 2024, Public Works Awarding Bodies are required to obtain valid CARB Certificates of Reported Compliance ("CRC") from all contractors and listed subcontractors before awarding the project. The Public Works Awarding Body will be required to retain CRCs for three years after the project is complete, and the CRCs are subject to CARB review upon five calendar days' notice.

The Regulations apply to all "Public Works Awarding Bodies," which phrase is broadly defined as "any public agency (state, county, city, school district, community college district, water district, sanitation district, transit district, etc.), or official thereof, in the state of California, that awards or enters into a contract for the erection, construction, alteration, repair, removal, or improvement of any public structure, building, road, or other public lands, property, or improvement of any kind."

The bidder must fully execute this document and submit it, including required attachments, with its bid for the above-captioned project. The bidder must submit the CRCs for the bidder and all of its subcontractors to this document within 7 calendar days of the bid opening.

The ARB Diesel Off-Road Online Reporting System (DOORS) reporting system is where the bidder and its subcontractors are able to obtain their CRCs: DOORS (ca.gov). There is also an additional website that provides them with more information on the regulation along with FAQs and user guides. The website for the "Off-Road Zone" is https://ww2.arb.ca.gov/our-work/programs/truckstop-resources/road-zone.

If any questions, please call the DOORS Hotline at 877-593-6677 or email doors@arb.ca.gov. Please note that at this time DOORS staff has limited access to documents received via mail and fax is unavailable.

Fact Sheet: Contracting Requirements | California Air Resources Board
https://ww2.arb.ca.gov/resources/fact-sheets/fact-sheet-contracting-requirements

Fact Sheet: Renewable Diesel Fuel Requirements | California Air Resources Board
https://ww2.arb.ca.gov/resources/fact-sheets/fact-sheet-renewable-diesel-fuel-requirements

Fact Sheet: Added Vehicle Restrictions and Tier Phase-Out Requirements | California Air Resources Board
https://ww2.arb.ca.gov/resources/fact-sheets/fact-sheet-added-vehicle-restrictions-and-tier-phase-out-requirements

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I, _____ [name of declarant], declare that I am the _____ [title] of _____ [name of bidding contractor], the entity making and submitting a bid for the above Project; that all CRCs required for _____ [name of bidding contractor] and its subcontractors on the above Project are attached to this declaration; that all of the attached CRCs are current and valid; and that the attached CRCs will allow the Owner to comply with the applicable CARB requirements in connection with the Project.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

_____ _____
Date Contractor

By: _____
Signature

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COST BREAKOUT FOR HARDCOURTS

Contractor: _____

Cost Breakdown: Within 24 hours of the receipt of bids, the apparent low bidder shall provide a cost breakout for the Hardcourts and the remainder of the project that sums up to the Base Bid number provided on the Bid Form. Refer to drawing sheet SD3 Enlarged Site Plan for scope of hardcourts. Hardcourt scope to include court athletic equipment and striping. Hardcourt scope to exclude 5 foot wide concrete walk on the west edge of the hardcourts and in front of the new building. Contractor to provide separate accounting for the hardcourts including separate Schedule of Values and Applications for Payment. Please fill out amounts below:

BASE BID FOR THE HARDCOURTS: Dollars ($_____)

BASE BID FOR THE REMAINDER OF PROJECT EXCLUDING HARDCOURTS: Dollars ($_____)

TOTAL BASE BID: Lump Sum price provided on the Bid Form: Dollars ($_____)

END OF SECTION 00 4110

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SECTION 00 5210 - FORM OF AGREEMENT

THIS AGREEMENT, dated Click or tap to enter a date., is by and between:

The "OWNER":

Click or tap here to enter text.

And the "CONTRACTOR":

Click or tap here to enter text.

For the consideration stated in this Agreement, OWNER and CONTRACTOR agree as follows:

1. Contract Documents. The complete Agreement includes all the Contract Documents as defined in the General Conditions and any other documents comprising any portion of the bid package, and all modifications, addenda, and amendments of or to any of these documents, all of which are incorporated by reference into this Agreement. The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all.

2. Scope of Performance. CONTRACTOR shall perform within the time set forth in Paragraph 4 of this Agreement everything required to be performed, and shall provide and furnish all labor, materials, necessary tools, expendable equipment, and all utility and transportation services described in the Contract Documents and required for construction of the project.

All of the work to be performed and materials to be furnished shall be completed in a good workmanlike manner in strict accordance with the Plans, Drawings, Specifications and all provisions of the Contract Documents as defined above. CONTRACTOR shall be liable to OWNER for any damages arising as a result of a failure to fully comply with this obligation, and CONTRACTOR shall not be excused with respect to any failure to so comply by any act or omission of OWNER, the Architect, Engineer, Inspector, Division of State Architect, or representative of any of them, unless such act or omission actually prevents CONTRACTOR from fully complying with the requirements of the Contract Documents, and unless CONTRACTOR protests at the time of the alleged prevention that the act or omission is preventing CONTRACTOR from fully complying with the Contract Documents. The protest shall not be effective unless reduced to writing and filed with OWNER within three working days of the date of occurrence of the act or omission preventing CONTRACTOR from fully complying with the Contract Documents.

3. Contract Price. Subject to any additions or deductions as provided in the Contract Documents, as full consideration for the faithful performance of the contract OWNER shall pay to CONTRACTOR the sum of $Click or tap here to enter text..

Alternates, if any included in the Contract Price:

Item:	**Price:**

Allowances, if any included in the Contract Price:

Item:	**Price:**

Unit Prices, if any:

Item:	**Price:**

4. Construction Period. The work shall commence on or before the date set forth in the Notice to Proceed and shall be

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completed:

☐ Not later than Click or tap here to enter text. calendar days from the date of commencement of Work.
☐ By the following date: Click or tap to enter a date.

5. Liquidated and Other Damages.

Step One Liquidated Damages: Failure to complete the Project, or applicable phases of the Project, within the date(s) and in the manner provided for by the Contract Documents, shall subject the Contractor to liquidated damages for each calendar day by which such completion is delayed beyond the applicable Date for Completion. For purposes of liquidated damages, the concept of substantial completion shall not constitute completion and is not part of the Contract Documents. The actual occurrence of damages and the actual amount of the damages which the Owner would suffer if the Project were not completed by the applicable Date for Completion are dependent upon many circumstances and conditions which could prevail in various combinations and, from the nature of the case, it is impracticable and extremely difficult to fix the actual damages. Damages that the Owner would suffer if completion were delayed include, but are not limited to, loss of the use of the Project, disruption of activities, costs of administration, supervision and the incalculable inconvenience and loss suffered by the public. Accordingly, the Parties agree that the following dollar figure shall be the amount of damages which the Owner shall directly incur upon failure of the Contractor to complete the Project, or applicable parts thereof, within the time specified, **$1,000.00 for each calendar day** by which completion of the Project, or applicable parts thereof, is delayed beyond the Date for Completion as adjusted by change orders. If the Contractor becomes liable under this Section, the Owner, in addition to all other remedies provided by law, shall have the right to withhold all retained percentages of payments and/or progress payments, and to collect the interest thereon, which would otherwise be or become due the Contractor until the liability of the Contractor under this Article has been finally determined. If the retained percentages and withheld progress payments are not sufficient to discharge all liabilities of the Contractor incurred under this Section, then the Contractor and its sureties shall continue to remain liable to the Owner for such liabilities until all such liabilities are satisfied in full. If the Owner accepts any work or makes any payment under this Agreement after a default by reason of delays, the payment or payments shall in no respect constitute a waiver or modification of any Agreement provisions regarding time of completion and liquidated damages.

Step Two Liquidated Damages: Should the Contractor fail to complete and closeout this contract within 65 days of the Notice of Completion, pursuant to Government Code Section 53069.85, said Contractor shall forfeit and pay (or the Owner may deduct the amount thereof from any money due or to become due to the Contractor) the sum of **Two Hundred and Fifty Dollars ($250.00) for each calendar day** as Step Two Liquidated Damages, in addition to amounts which may be assessed for Step One liquidated damages.

6. Insurance. Prior to commencing the work, CONTRACTOR shall take out and maintain during the life of this contract, and shall require all subcontractors, if any, whether primary or secondary, to take out and maintain all insurance as required in the General Conditions.

7. Substitution of Securities. Public Contract Code Section 22300 permits the substitution of securities for any monies withheld by a public agency to ensure performance under a contract. At the request and expense of CONTRACTOR, securities equivalent to the amount withheld shall be deposited with the public agency, or with a state or federally chartered bank in California as the escrow agent, who shall then pay such monies to CONTRACTOR. OWNER retains the sole discretion to approve the bank selected by CONTRACTOR to serve as escrow agent. Upon satisfactory completion of the contract, the securities shall be returned to CONTRACTOR. Securities eligible for investment shall include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit. CONTRACTOR shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.

In the alternative, under Section 22300, CONTRACTOR may request OWNER to make payment of earned retentions directly to the escrow agent at the expense of CONTRACTOR. Also at CONTRACTOR's expense, CONTRACTOR may direct investment of the payments in securities, and CONTRACTOR shall receive interest earned on such investment upon the same conditions as provided for securities deposited by CONTRACTOR. Upon satisfactory completion of the contract, CONTRACTOR shall

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receive from the escrow agent all securities, interest, and payments received by escrow agent from OWNER pursuant to the terms of Section 22300. Not later than 20 days after receipt of such payment, CONTRACTOR shall pay to each subcontractor the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to ensure performance of CONTRACTOR.

8. Posting. Contractor shall be responsible to post job site notices prescribed by Title 8 CCR § 16451 (d) pertaining to prevailing wage monitoring by the Department of Industrial Relations.

9. Entire Agreement. This Agreement, including the Contract Documents incorporated by reference, constitutes the final, complete, and exclusive statement of the terms of the agreement between the parties pertaining to construction of the project. It supersedes all prior and contemporaneous understandings or agreements of the parties. No party has been induced to enter into this Agreement by, nor is any party relying on, any representation or warranty outside those expressly set forth in this Agreement. The Agreement can only be modified by an amendment in writing, signed by both parties and approved by action of OWNER's governing board or other governing body.

10. Parties in Interest. Nothing in this Agreement, whether express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person other than the parties to this Agreement and their respective successors and assigns. Nothing in this Agreement, whether express or implied, is intended to relieve or discharge the obligation or liability of any third person to any party to this Agreement, nor shall any provision give any third person any right of subrogation or action against any party to this Agreement.

11. Severability. If any provision of this Agreement is held by a court of competent jurisdiction to be invalid or unenforceable, the remainder of the Agreement shall continue in full force and effect and shall in no way be impaired or invalidated.

12. Governing Law. The rights and obligations of the parties and the interpretation and performance of this Agreement shall be governed by the laws of California, excluding its conflict of laws rules.

13. Notice. Labor Code § 1771.1(a) provides that "A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded." This project is subject to monitoring by the Department of Industrial Relations.

The parties have executed this Agreement by the signatures of their authorized representatives effective the date indicated above.

DISTRICT	CONTRACTOR
By: _____	By: _____
Signature	Signature
Print Name Above	Print Name Above
Print Title Above	Print Title Above

[Continued on Following Page]

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[CORPORATE SEAL OF CONTRACTOR, if a corporation]

Contractor's License No.

Tax ID/Social Security No.

DIR Registration No.

END OF SECTION 00 5210

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SECTION 00 5260 - ESCROW AGREEMENT

1. **GENERAL:** Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I - Specification Sections, apply to this Section.

2. **ESCROW AGREEMENT FORM:** The Escrow Agreement form to be used for this project shall be the "Escrow Agreement for security deposits in lieu of Retention" included in this section.

END OF SECTION 00 5260

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ESCROW AGREEMENT FOR
SECURITY DEPOSITS IN LIEU OF RETENTION

This is a fiduciary account created by statute, Public Contract Code section 22300. The funds deposited in this account shall not be released to Contractor or any other person or entity, other than Owner, including pursuant to any purported lien or writ of attachment or execution, without the prior written, express approval of Owner.

This Escrow Agreement is made and entered into by and between _____ School District, whose address is _____ ("Owner"),_____, whose address is _____ ("Contractor"); and _____, a state or federally chartered bank in California whose address is _____ ("Escrow Agent").

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

1. Pursuant to California Public Contract Code section 22300, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by the Owner pursuant to the Contract entered into between the Owner and Contractor in the amount of _____ Dollars ($_____), and dated _____, ____, (the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When Contractor deposits the securities as a substitute for retention earnings, the Escrow Agent shall notify the Owner within ten (10) calendar days of the deposit. The market value of the securities at the time of the substitution, as valued by the Owner, shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract. If the Owner determines that the securities are not adequate it will notify Contractor and Escrow Agent, and Contractor shall deposit additional security as further determined by the Owner. Securities shall be held in the name of the Owner and shall designate the Contractor as the beneficial Owner.

2. Thereafter, Owner shall make progress payments to the Contractor for such funds which otherwise would be withheld from progress payments pursuant to the Contract, provided that the Escrow Agent holds securities in the form and amount specified above.

3. Pursuant to Public Contract Code section 22300, as an alternative to the procedures set forth above, Contractor may request in writing that the Owner pay retention amounts directly to Escrow Agent. When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for benefit of the Contractor until such time as the escrow created under this Escrow Agreement is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

4. The Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor and Escrow Agent.

5. The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

7. The Owner shall have the right to draw upon the securities or any amount paid directly to Escrow Agent in the event of default of the Contract by the Contractor. Upon seven (7) days written notice to the Escrow Agent from the Owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash, including any amounts paid directly to Escrow Agent pursuant to Section 3 above, as instructed by Owner. Escrow Agent shall not be concerned with the validity of any notice of default given by Owner pursuant to this paragraph, and shall promptly comply with Owner's instructions to pay over said escrowed assets. Escrow Agent further agrees to not interplead the escrowed assets in response to a conflicting demand and waives any present or future opportunity of interpleader.

8. Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payment of fees and charges.

9. Escrow Agent shall rely on the written notifications from the Owner and Contractor pursuant to Sections (4), (5), (6), (7) and (8) of this Agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

10. Pursuant to Public Contract Code §22300, Contractor shall pay to each subcontractor, not later than 20 days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of the Contractor.

11. Securities eligible for investment under this Agreement, as provided by Public Contract Code §22300, shall be those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and Owner.

12. The Contractor shall indemnify and hold harmless the Owner, and the Owner's agents and employees, from and against all liability, claims, actions, costs, damages or losses of any kind, including but not limited to attorney's fees, arising out of or resulting from any loss due to reduction of interest earnings or value of securities, or by reason of any delinquency, negligence, or default of escrow agent.

13. The venue of any litigation concerning the rights and obligations of the parties to this agreement shall be the County of Tulare and the removal provisions of Code of Civil Procedure Section 394 shall not apply to any such litigation.

14. The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner, the Contractor, and the Escrow Agent in connection with the foregoing, and exemplars of their respective signatures are as follows:

ON BEHALF OF OWNER	**ON BEHALF OF CONTRACTOR**	**ON BEHALF OF ESCROW AGENT**
Signature	Signature	Signature
Typewritten Name	Typewritten Name	Typewritten Name
Title	Title	Title

In Witness Whereof, the parties have executed this Agreement by their proper officers on the date first set forth above.

OWNER	**CONTRACTOR**	**ESCROW AGENT**
Signature	Signature	Signature
Typewritten Name	Typewritten Name	Typewritten Name
Title	Title	Title

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

SECTION 00 6100 - BOND FORMS

1. **GENERAL:** Contractor shall pay for and maintain the required bonds during the terms specified.

2. **PERFORMANCE / PAYMENT BOND:** Performance / Payment Bond shall be submitted with the Agreement Form in the amount of 100% percent of the Contract Price and shall guarantee the Faithful Performance of the Contract, and shall insure the Owner during the life of the Contract, and for the term of any warranties or guarantees specified, and shall guarantee the payment in full of all claims for labor and material in accordance with the provisions of Sections 3247 and 3248 of the Civil Code.

3. **BOND FORMS:** Bonds to be used on this project shall be the American Institute of Architects Documents listed below, or bond forms that conform to applicable provisions of the California Civil Code, issued by a corporation duly and legally licensed to transact business in the State of California, and provided by an admitted surety insurer.

Bid Bond	AIA Document A310 (2010)
Performance / Payment Bond	Bond forms attached to this Section

The Contractor shall provide a minimum of four wet-signature copies of the Performance Bond and the Labor and Material Payment Bond to satisfy the needs of the Owner, the County Recorder, and other governmental agencies.

END OF SECTION 00 6100

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PROJECT PAYMENT BOND
(Civil Code § 9550 et seq.)

_____ (the "Owner" of the public works project described below) and _____[CONTRACTOR'S BUSINESS NAME] (the "Principal") have entered into a Contract, the terms of which are incorporated herein by reference, dated _____, 2026 for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to construct the_____ [NAME OF PROJECT], at _____[PROJECT ADDRESS], [COUNTY NAME] COUNTY, CALIFORNIA. The Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the Owner to secure the claims arising under said Contract.

The Principal and the undersigned _____("Surety") are held and firmly bound unto all laborers, material men, and other persons, and bound for all amounts due, referred to in Civil Code section 9554, subdivision (b), in the sum of _____ Dollars ($_____) which sum well and truly be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by this payment bond.

The condition of this obligation is that if the said Principal or any of its subcontractors, or the heirs, executors, administrators, successors, or assigns of any of them, shall fail to pay any of the persons named in Civil Code section 9100, or any of the amounts due, as specified in Civil Code section 9554, subdivision (b), that said Surety will pay the same in an amount not exceeding the sum shown above, and also in case suit is brought upon this bond, will pay costs and reasonable attorney's fees to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgment rendered. It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force. The Surety, for value received, stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract, to the Work to be performed under the Contract, or to the specifications of the Contract, shall in any manner affect its obligations on this bond, and it waives notice of any such change, extension, alteration, or addition.

(To be signed by)
(Principal and Surety,)
(and acknowledged and)
(Notarial Seal attached)

_____
Principal
_____

_____
Surety

By: _____
Attorney-in-Fact

_____

The above bond is accepted and approved on _____, 20

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PROJECT PERFORMANCE BOND

We [CONTRACTOR'S BUSINESS NAME], as Principal, and _____ as Surety, are held and firmly bound unto _____[OWNER NAME], in the County of [NAME], State of California (the "Owner") in the sum of $_____ for the payment of which sum well and truly made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, to the Owner for the full performance of a certain contract with the Owner, the terms of which are incorporated herein by reference, dated , 2026, for construction of a public work project described as_____ _____[NAME OF PROJECT], at _____[PROJECT ADDRESS], [COUNTY NAME] County, California.

The condition of this obligation is such that if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the Owner, with or without notice to the Surety, and for the period of time specified in said Contract after completion for correction of faulty or improper materials and workmanship and during the life of any guarantee or warranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of said Contract that may hereafter be made, then this obligation is to be void, otherwise to remain in full force.

The Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, to the Work to be performed under the Contract, or to the specifications of the Contract, shall in any way affect its obligation on this bond, and it waives notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the Work, or to the specifications.

No further agreement between Surety and Owner shall be required as a prerequisite to the Surety performing its obligations under this bond.

(To be signed by Principal and)
(Surety, and acknowledged)
and Notarial Seal attached)
(Affix Corporate Seal)
(Affix Corporate Seal)
(Affix Corporate Seal)

_____
(Individual Principal)
_____
(Business Address)
_____
(Corporate Principal)
_____
(Business Address)
_____
(Corporate Surety)
_____
(Business Address)

By:_____

_____

The rate of premium on this bond is _____ per thousand.

The total amount of premium charged is _____.

The above must be filled in by Corporate Surety.

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AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT: $

PROJECT:
(Name, location or address, and Project number, if any)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Init.
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User Notes:
(3B9ADA15)

Signed and sealed this day of ,

	(Contractor as Principal) *(Seal)*
(Witness)	*(Title)*
	(Surety) *(Seal)*
(Witness)	*(Title)*

Init.
/

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Additions and Deletions Report for
AIA® Document A310™ – 2010

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

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Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, James Ryan Morrelli, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 17:49:57 on 02/01/2018 under Order No. 1526130616 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A310™ - 2010, Bid Bond, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

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SECTION 00 7210 - GENERAL CONDITIONS

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ARTICLE 1 – DEFINITIONS

A. **Action of the Governing Board or Other Governing Body:** An official act of the governing board or other governing body of OWNER.

B. **Abbreviations:** In the interest of brevity, the Specifications are written in an abbreviated form and may not include complete sentences. Omission of words or phrases such as "Contractor shall," "shall be," etc., are intentional. Nevertheless, the requirements of the Specifications are mandatory. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings.

C. **Addenda:** Addenda shall govern over all other Contract Documents. Subsequent addenda issued shall govern over the prior addenda only to the extent specified.

D. **Approve:** The term “approve,” where used in conjunction with the Architect’s action on the CONTRACTOR’S submittals, applications, and request, is limited to the responsibilities and duties of the Architect stated in General and Supplementary Conditions. Approval shall not release CONTRACTOR from responsibility to fulfill Contract Document requirements, unless otherwise provided in the Contract Documents.

E. **Architect:** The person, persons, or entity selected by OWNER to provide architectural services to the Project. Architect is an independent contractor and is not an agent of OWNER.

F. **As Shown, Etc:** Where "as shown," "as indicated," "as detailed," or words of similar import are used, reference is made to the Drawings accompanying the Specifications unless otherwise stated. Where "as directed," "as required," "as permitted," "as authorized," "as accepted," "as selected," or words of similar import are used, the direction, requirement, permission, authorization, approval, acceptance, or selection by Architect is intended unless otherwise stated.

G. **Contract Documents:** All contract documents, including all official documents on this Project, including the Invitation to Bid, Instructions to Bidders, Bid Form, Designation of Subcontractors, Workers' Compensation Certificate, Performance Bond, Payment Bond, Change Orders, Shop Drawings and their Transmittals, Information Required of Bidder, all prequalification forms submitted pursuant to Public Contract Code sections 20111.5 or 20111.6, if any, Substitution Listing form on any approved substitutions, Non-Collusion Declaration, Insurance Certificates, Guarantees, Contractor’s Certificate Regarding Non-Asbestos and/or Lead Containing Materials, if any, Davis-Bacon Compliance Certification, Fingerprinting Certifications, Labor Compliance Program documents, General Conditions, Supplemental General Conditions, if any, Iran Contracting Act Certification, if any, Special Conditions and/or Requirements, if any, Plans, Drawings, Specifications, the Construction Agreement, and all Modifications, bulletins, addenda, and amendments of those documents.

H. **Completion:** Statutory definitions of “completion” and “complete” shall apply for those statutory purposes. For accrual of liquidated damages, claim and warranty purposes, “completion” and “complete” mean the point in the Project where (1) Contractor has fully and correctly performed all Work in all parts and requirements, including corrective and punch list work, and (2) OWNER’s representatives have conducted a final inspection that confirmed this performance. “Substantial” or any other form of partial or non-compliant performance of the Work shall not constitute “completion” or “complete” under the Contract Documents.

I. **Construction Change Directive (CCD):** a written order prepared by the Owner and signed by the Owner and Architect, directing the Contractor to proceed with a change in the Work prior to agreement on adjustment, if any, in the Contract Sum and/or Contract Time.

J. **CONTRACTOR:** That entity awarded this Construction Agreement by official action of OWNER. Throughout the

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Contract Documents CONTRACTOR is treated as being of singular number and neutral gender.

K. **Date of Acceptance:** The date when all the following conditions are satisfied:

1. OWNER can occupy all portions of the project.
2. The notice of completion is recorded with local authorities.
3. The final verified report is filed with the Division of State Architect of the Department of General Services.
4. Acceptance of project by OWNER's governing board or other governing body.

L. **Days:** Calendar days unless noted otherwise.

M. **Deferred Approvals:** The requirements approved by the governing jurisdiction on any item submitted as a deferred approval in accordance with Title 24, California Code of Regulations, shall take precedence over any previously issued addenda, drawing, or specification. Deferred approvals shall be submitted and processed pursuant to the requirements of Division 1 of the Specifications. All risks of delay due to review and approval by the Division of the State Architect or any other governmental agency having jurisdiction shall be on the requesting party.

N. **Division 1:** Sections of Division 1 - General Requirements govern the execution of the work of all sections of the specifications.

O. **Equivalent to:** Equal or superior in function and quality and approved by the Architect.

P. **Furnish:** Supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations.

Q. **General Conditions:** The General Conditions and any supplementary general conditions are a part of each and every section of the Specifications.

R. **Indicated:** Refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as “shown,” “noted,” or “scheduled” are used, it is to help locate the reference; no limitation on locations is intended except as specifically noted.

S. **Install:** Used to describe operations at the project site, including the actual “unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protection, cleaning and similar operations.”

T. **Installer:** An entity engaged by CONTRACTOR, either as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar required operations. Installers are required to be experienced in the operations they are engaged to perform and licensed as required in the individual specification sections.

U. **Liquidated Damages:** Pursuant to Government Code Section 53069.85, this is the specified sum of money that CONTRACTOR shall forfeit and pay to OWNER for those specified portions of the Project that are uncompleted and delayed beyond the stated completion time.

V. **Metric:** The Specifications may indicate metric units of measurement as a supplement to US customary units. When indicated thus: 1" (25 mm), the US customary unit is specific, and the metric unit is nonspecific. When not shown with parentheses, the unit is specific. The metric units correspond to the "International System of Units" (SI) and generally follow ASTM E 380, "Standard for Metric Practice."

W. **Modification:**

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1. A written amendment to the Contract Documents signed by both parties;
2. A fully executed Change Order;
3. A written interpretation issued by the Architect; or
4. A written order for a minor change in the Work issued by the Architect.

X. **Or Equal:** Where named products in specification text are accompanied or are deemed by law to be followed by the term “or equal,” or other language of similar effect, CONTRACTOR shall comply with those Contract Document provisions for ”substitutions” when obtaining Architect’s review and consideration.

Y. **OWNER:** The school district, community college district, County Superintendent of Schools, or other public entity executing the Construction Agreement acting through its governing board or other governing body.

Z. **Plural:** Words in the singular shall include the plural whenever applicable or the context so indicates.

AA. **Plans:** The reproductions of the official drawings adopted and approved by OWNER showing locations, character, dimensions, and details of the work.

BB. **Project:** The undertaking planned by OWNER and CONTRACTOR as provided in the Contract Documents.

CC. **Project Communications:** Routine written communications between the Architect and the Contractor, including documentation of telephone conversations, shall be in letter, field memo, or fax format. Such communications shall not be identified as Requests for Information, nor shall they substitute for any other written requirement pursuant to the provisions of these Contract Documents.

DD. **Project Inspector/Inspector of Record:** Any individual or firm retained by OWNER as the on-site inspector for a particular project hired by and paid by OWNER and under general direction of the Architect or registered engineer in charge. The Project Inspector shall be responsible for inspecting all work included in the Contract Documents. A special inspector shall be responsible only for inspecting the work for which he/she is approved. Inspectors are independent contractors and are not agents or employees of OWNER.

EE. **Project Manual:** The volume(s) that include the bidding requirements, sample forms, and all of the initial Contract Documents, such as Conditions of the Contract, Schedules and Details Manual, the Specifications, and the addenda to be used on the Project.

FF. **Project Site:** The space available to CONTRACTOR for performance of the Work, either exclusively or in conjunction with others performing other construction as part of the Project. The extent of the Project Site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.

GG. **Provide:** "Provide" means "provided complete in place," that is, furnished, installed, tested, and ready for operation and use.

HH. **Refer:** Indicates that the subject is defined or specified in further detail at another location in the Contract Documents or elsewhere as indicated. Except, as otherwise noted, “refer” does not imply that CONTRACTOR must purchase or subcontract the subject work in any special manner.

II. **Related Work in Other Sections:** A nonrestrictive term used throughout the Specifications to coordinate the Work and facilitate checking and bidding.

JJ. **Required:** As required by Contract Documents.

KK. **Safety Orders:** Issued by Division of Industrial Safety and OSHA Safety and Health Standards for Construction.

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LL. **Specification:** The printed instruction and requirements which complement the plans as to the methods and manner of performing the Work or to the quantities and qualities of the materials to be furnished.

MM. **Standard Specifications:** Any reference to standard specifications of any society, institute, association, or governmental authority is a reference to the organization's standard specifications, which are in effect as of the date the Notice to Bidders is first published. If applicable specifications are revised prior to completion of any part of the Work, the Contractor may, if acceptable to Architect, perform such Work in accordance with the revised specifications. The standard specifications, except as modified in the Specifications for the Project, shall have full force and effect as though printed in the Specifications. Architect will furnish, upon request, information as to how copies of the standard specifications referred to may be obtained.

NN. **Subcontractor:** Includes those having a direct contract with the CONTRACTOR and those who furnish material worked to a special design according to plans, drawings, and Specifications of this work, but does not include those who merely furnish material not so worked.

OO. **Surety:** The firm or corporation executing CONTRACTOR'S Performance Bond and/or Payment Bond as surety, as the context indicates.

PP. **Testing Laboratory:** An independent entity engaged to perform specific inspections or test, either at the Project Site or elsewhere, and to report on, and if required, interpret results of those inspections or tests. It is not an agent of OWNER.

QQ. **Titles:** The Specifications are separated into titled sections for convenience only and not to dictate or determine the trade or craft involved.

RR. **Or:** "Or" shall include "and/or."

SS. **Unfinished:** Refers to the status of the Work prior to reaching completion, as described in Article 54.

TT. **Work:** Work of the CONTRACTOR and subcontractors, including all labor or materials (including without limitation, equipment, and appliances), both incorporated in, or to be incorporated in the Project in order to fully meet the requirements of the Contract Documents.

ARTICLE 2 – CONTRACTOR

A. CONTRACTOR is and shall at all times be deemed to be an independent contractor and shall be wholly responsible for the manner in which it performs the services required of it by the terms of the Contract Documents.

B. Nothing contained in the Contract Documents shall be construed as creating the relationship of employer and employee, or principal and agent, between OWNER and CONTRACTOR or any of CONTRACTOR'S agents or employees.

C. CONTRACTOR exclusively assumes the responsibility for the acts of its employees as they relate to the services to be provided during the course and scope of their employment. CONTRACTOR, its agents, and employees shall not be entitled to any rights or privileges of OWNER employees and shall not be considered in any manner to be OWNER employees.

D. OWNER shall be permitted to monitor the activities of CONTRACTOR to determine compliance with the terms of the Contract Documents.

E. Contractors are required by law to be licensed and regulated by the Contractors' State License Board. Any contractor not so licensed is subject to penalties under the law and the Construction Agreement will be considered void pursuant to Business and Professions Code Section 7028.7. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, 3132 Bradshaw Road, Post Office Box 2600, Sacramento, California, 95826.

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F. Contractors or subcontractors are not qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. This project is subject to monitoring by the Department of Industrial Relations.

G. The CONTRACTOR shall waive “common practice”, “common usage”, and “industry standard” as construction criteria wherever the Contract Documents, details, plans, specifications, governing code or ordinances require greater quantity or better quality than common practice, common usage, or industry standard would require.

ARTICLE 3 – CONTRACTOR SELECTION PROCESS AND PROHIBITED INTERESTS

A. As a means of maintaining the integrity of the formal selection process, contacts with individual members of OWNER’s Board of Trustees or governing body on behalf of any bidding firm relative to this Project will be considered inappropriate.

B. No official of OWNER who is authorized in such capacity and on behalf of OWNER to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting or approving, any architectural, engineering, inspection, construction, or material supply contract, or any subcontract in connection with construction of the Project, shall have any direct or indirect financial interest in any part of this Project.

C. No officer, employee, architect, attorney, engineer. or inspector of or for OWNER who is authorized in such capacity and on behalf of OWNER to exercise any executive, supervisory, or other similar functions in connection with construction of the Project shall have any direct or indirect financial interest in any part of this Project.

D. CONTRACTOR shall receive no compensation and shall repay OWNER for any compensation received should CONTRACTOR aid, abet, or knowingly participate in any violation of this Article.

ARTICLE 4 – CHANGE IN NAME OR NATURE OF CONTRACTOR'S LEGAL ENTITY

Before CONTRACTOR makes any change in the name or legal nature of the CONTRACTOR'S entity, CONTRACTOR shall first notify OWNER in writing and cooperate with OWNER in making such changes as OWNER may request in the Contract Documents.

ARTICLE 5 – DEBARRED CONTRACTOR

A. Pursuant to Labor Code Sections 1777.1 and 1777.7, a contractor may be prohibited from bidding or performing work as a subcontractor on a public works project.

B. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract, and any public money that may have been paid to a debarred subcontractor by a contractor on the Project shall be returned to the awarding body. The contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

C. Pursuant to Public Contract Code Section 4701, CONTRACTOR shall request the substitution of any subcontractor who has been debarred by the California Labor Commissioner from working as a subcontractor on public work.

ARTICLE 6 – SUBCONTRACTING

A. CONTRACTOR agrees to bind every subcontractor to the terms of the Contract Documents as far as the terms are applicable to the subcontractor's work. Each subcontract shall contain a reference to Contract Documents, and the terms of the Contract Documents shall be incorporated into and made a part of each subcontract. If CONTRACTOR subcontracts any

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part of its work under the Construction Agreement, CONTRACTOR shall be responsible to OWNER for any acts and omissions of its subcontractors and of people either directly or indirectly employed by its subcontractors. Nothing contained in the Contract Documents shall create any contractual relationship between any subcontractor and OWNER.

B. OWNER'S consent to or approval of any subcontractor shall not in any way relieve CONTRACTOR of its obligations under the Contract Documents, and no such consent or approval shall be deemed to waive any provision of the Contract Documents.

C. CONTRACTOR must submit with its bid a Designation of Subcontractors. If CONTRACTOR specifies more than one subcontractor for the same portion of work or fails to specify a subcontractor, and such portion of the work exceeds one-half of one percent of the total bid, CONTRACTOR agrees that it is fully qualified to perform and shall perform such work itself. The substitution or addition of subcontractors shall be permitted only as authorized by Public Contract Code Sections 4100, et seq.

D. All subcontractors shall be appropriately licensed and registered with DIR to perform the work for which they are employed in conformity with the laws of the State of California.

E. In accordance with California Business and Professions Code Section 7059, if CONTRACTOR is designated as a "specialty contractor" (as defined in Public Contract Code Section 7058), all of the work to be performed outside of the Contractor's license specialty, except “incidental” work as that term is used in Section 7059(a), shall be performed by a licensed subcontractor in compliance with the Subletting and Subcontracting Fair Practices Act, California Public Contract Code Section 4100, et seq.

F. A copy of each subcontract, if in writing, or if not in writing, then a written statement signed by the Contractor giving the name of the subcontractor and the terms and conditions of such subcontract, shall be filed with OWNER before the subcontractor begins work. Each subcontract will provide for termination in accordance with these General Conditions. Each subcontract shall provide for its annulment by CONTRACTOR on the order of the Architect if in the Architect’s opinion the subcontractor fails to comply with the requirements of the Contract Documents insofar as the same may be applicable to this work.

G. Nothing contained in these General Conditions shall relieve CONTRACTOR of any liability or obligation under the Contract Documents, nor shall any permissible substitution or addition of a subcontractor result in any increase in the contract price or in an extension of time for completion of the Project.

H. CONTRACTOR shall require subcontractors to include the provisions of this article in their sub-subcontracts, if any.

I. Each subcontract applicable to this Project is hereby assigned to OWNER, such assignment to become effective only upon termination of the Construction Agreement for cause pursuant to the Contract Documents, and only as to such subcontracts as OWNER may, in its sole discretion, select and provide written notice of such assignment, and such assignments are subject to the rights and obligations of the surety on any applicable bonds, as detailed in the Contract Documents.

J. Subcontractor Responsibilities:

1. Remedies for Failure to Perform: Without limitation of any other right or remedy available to Contractor under the Contract Documents or at law, should: the Subcontractor fail to perform its portion of the Work in a skilled and expeditious manner in accordance with the terms of the Contract Documents with sufficient labor, materials, equipment, and facilities; delays the progress of the job or otherwise fail in any of its obligations; or either a receiver is appointed for the Subcontractor or the Subcontractor is declared to be bankrupt or insolvent, and such appointment, bankruptcy, or insolvency proceedings or declaration is not set aside within 30 days, then the Contractor, upon three days notice to the Subcontractor (subject to the requirements of Public Contract Code, §4107), may provide such labor, materials, or perform such work and recover the cost plus profit and overhead

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from monies due or to become due thereafter to the Subcontractor. The Contractor may terminate the employment of the Subcontractor, taking possession of its tools, materials, and equipment related to the Work and cause the entire portion of the Subcontractor's Work to be finished either by another Subcontractor or through the Contractor's own forces.

2. Disputes Not to Affect Work: If there is any dispute as to whether or not any portion of the Work is within the scope of the Work to be performed by a Subcontractor, or any dispute as to whether or not the Subcontractor is entitled to a Change Order for any Work requested of it or entitled to payment, then the Subcontractor shall continue to proceed diligently with the performance of the Work. Regardless of the size or nature of the dispute, the Subcontractor shall not under any circumstances cease or delay performance of its portion of the Work during the existence of the dispute. The Contractor shall continue to pay the undisputed amounts called for under the Subcontract Agreement during the existence of the dispute. Any party stopping or delaying the progress of the Work because of a dispute shall be responsible in damages to the Owner, the Architect, and the Contractor for any losses suffered as a result of the delay.
3. Compliance with Procedures: Each Subcontractor shall comply with all procedures established by the Contractor for coordination among the Owner, the Owner's consultants, Architect, Contractor, and the various Subcontractors for coordination of the Work with all local municipal authorities, government agencies, utility companies, and any other agencies with jurisdiction over all or any portion of the Work. The Subcontractor shall cooperate fully with all of the foregoing parties and authorities.
4. Non-Exclusive Obligations: The specific requirements of Article 5 are not intended to exclude the obligation of the Subcontractor to comply with any of the other provisions of the General Conditions and the other Contract Documents which are relevant to the proper performance of its portion of the Work.

ARTICLE 7 – ARCHITECT

A. The Architect shall administer the Contract in accordance with the Contract Documents and shall act as the OWNER'S representative during construction until issuance of the final Certificate for Payment. The Architect's authority to act on behalf of the OWNER is limited to that expressly stated in the Contract Documents.

B. The Architect shall perform site visits at intervals suitable to the phase of construction or as otherwise agreed with the OWNER. These visits are intended to allow the Architect to observe the general progress and quality of the Work and to assess, in a general manner, whether the observed Work appears to be proceeding in accordance with the Contract Documents. The Architect is not required to perform continuous or exhaustive inspections and shall not be responsible for construction means, methods, sequences, procedures, or site safety, all of which remain the sole responsibility of the CONTRACTOR.

C. Based on site observations, the Architect shall keep the OWNER reasonably informed regarding progress and observed quality of the Work. The Architect shall not be responsible for the CONTRACTOR'S failure to perform the Work in accordance with the Contract Documents and shall not be liable for the acts or omissions of the CONTRACTOR, subcontractors, suppliers, or any other persons performing Work on the Project.

D. All communications between the OWNER and CONTRACTOR that relate to or may impact the Architect's services shall include the Architect. The OWNER shall promptly inform the Architect of any direct communications with the CONTRACTOR affecting the Project. Communications with the Architect's consultants shall be made through the Architect. Communications with subcontractors and suppliers shall be made through the CONTRACTOR. Communications with any separate contractors shall be made through the OWNER, unless otherwise stated in the Contract Documents.

E. The Architect shall review the CONTRACTOR'S Applications for Payment and based on such review, determine the amounts properly due and issue corresponding Certificates for Payment.

F. The Architect may reject Work that does not comply with the Contract Documents. When deemed appropriate, the Architect may require inspection or testing of the Work in accordance with applicable Contract provisions, whether or not the Work is fabricated, installed, or completed. The exercise or non-exercise of this authority shall not impose responsibility

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or liability on the Architect for the CONTRACTOR'S performance or for any persons performing the Work.

G. The Architect shall review and take appropriate action on CONTRACTOR submittals, including Shop Drawings, Product Data, and Samples, solely to determine consistency with the design intent and information contained in the Contract Documents. Such review shall occur in accordance with an approved submittal schedule or, if none exists, within a reasonable time determined by the Architect. Review does not extend to verification of dimensions, quantities, installation methods, performance characteristics, or safety considerations, all of which remain the CONTRACTOR'S responsibility. The Architect's review of a submittal or individual component does not constitute approval of an entire assembly or construction system.

H. The Architect shall prepare Change Orders and Construction Change Directives and may authorize minor changes in the Work as permitted by the Contract Documents. The Architect shall also evaluate and make recommendations regarding concealed or unforeseen conditions as required.

I. Upon written request from either the OWNER or CONTRACTOR, the Architect shall interpret and make determinations regarding the requirements of the Contract Documents. Responses shall be issued in writing within any agreed-upon time frame or, if none exists, within a reasonable period.

J. All interpretations and decisions rendered by the Architect shall be consistent with the intent of the Contract Documents and reasonably inferable therefrom. The Architect shall act impartially and in good faith to promote proper performance by both OWNER and CONTRACTOR and shall not be liable for interpretations or decisions made in good faith.

K. Decisions by the Architect concerning aesthetic matters shall be final, provided they are consistent with the intent expressed in the Contract Documents.

L. The Architect shall review and respond to Requests for Information concerning the Contract Documents in writing within any agreed-upon period or otherwise with reasonable promptness. When necessary, the Architect shall issue supplemental drawings or specifications to clarify or resolve such requests.

ARTICLE 8 – PROJECT INSPECTOR AND INSPECTOR FACILITIES

A. One or more Project Inspectors ("IOR" / "PI"), including specialty Inspectors as required, employed by OWNER and operating under direction of the Architect, in accordance with the requirements of the California Code of Regulations Titles 21 and 24, will be assigned to the Work. All work shall be performed under the observation of or with the knowledge of the Project Inspector. The Project Inspector shall have free access to all parts of the Work at any time. CONTRACTOR shall furnish the Project Inspector with such information as may be necessary to keep the Project Inspector fully informed regarding the progress and manner of work and the character of materials.

B. Observations by the Project Inspector shall not in any way relieve CONTRACTOR from responsibility for full compliance with all terms and conditions of the Contract Documents or be construed to lessen to any degree CONTRACTOR's responsibility for providing efficient and capable superintendence.

C. The Project Inspector is not authorized to make changes in the drawings or Specifications, nor shall the Project Inspector's approval of the Work and methods relieve CONTRACTOR of responsibility for the correction of subsequently discovered defects, or from its obligation to fully comply with the Contract Documents.

ARTICLE 9 – COPIES FURNISHED

CONTRACTOR will be furnished with the quantity of drawings and specifications as stated in Section 00 2110 Instructions to Bidders free of charge. Additional sets will be furnished, upon request from the Contractor, at the price of 1.15 times the Architect's cost of reproduction and delivery.

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ARTICLE 10 – OWNERSHIP OF DRAWINGS

The Drawings, Specifications, and other documents prepared on behalf of the OWNER are instruments of the services of the Architect and its consultants and are the property of the OWNER. The CONTRACTOR may retain one contract record set. Neither the CONTRACTOR nor any Subcontractor, Sub-subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect, and unless otherwise indicated the Architect shall be deemed the author of them. All copies of them, except the CONTRACTOR'S record set, shall be returned or suitably accounted for to the OWNER, upon request upon completion of the Work. The Drawings, Specifications, and other documents prepared by the Architect, and copies thereof furnished to the CONTRACTOR, are for use solely with respect to this Project. They are not to be used by the CONTRACTOR or any subcontractor, sub-subcontractor, or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the OWNER and the Architect. The CONTRACTOR, Subcontractors, Sub-subcontractors, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the OWNER's property interest or other reserved right. All copies made under this license shall bear appropriate attribution and the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect.

ARTICLE 11 – DOCUMENTS ON WORK

A. CONTRACTOR shall keep one copy of all Contract Documents, including addenda, change orders, shop drawings, and other modifications, and Titles 19, 21, and 24 of the California Code of Regulations, on the job at all times. The documents shall be kept in good order and accurately marked to record all changes made during construction. The documents shall be available to the Architect and its representatives at all times.

B. CONTRACTOR shall be acquainted with and comply with all statutes and regulations as they relate to this Project. (See particularly the duties of Contractor, Title 24 California Code of Regulations, Sections 4-343.) CONTRACTOR shall also be acquainted with and comply with all provisions of the California Code of Regulations relating to conditions on this Project, particularly Titles 8 and 17.

C. The provisions of all applicable building codes and ordinances shall be considered a minimum requirement. Where the requirements of these Contract Documents exceed those of such codes or ordinances, these Contract Documents shall govern. In the event of conflict between any of the Contract Documents, the Architect shall determine which of the conflicting provisions shall be followed, and the CONTRACTOR shall be obligated to construct the work according to the selected provision without additional cost to the OWNER.

D. Work not particularly detailed, marked, or specified shall be the same as similar parts that are detailed, marked or specified.

ARTICLE 12 – DRAWINGS AND SPECIFICATIONS

A. Drawings and Specifications are intended to delineate and describe the Project and its component parts sufficiently to enable skilled and competent contractors to intelligently bid upon the work, and to carry the Work to a successful and timely conclusion.

B. Organization of the Specifications into divisions, sections, and articles, and arrangement of drawings, shall not control CONTRACTOR in dividing the Work among subcontractors or in establishing the extent of work to be performed by any trade.

C. The drawings and Specifications describe the work to be performed by CONTRACTOR. Generally, the Specifications describe work which cannot be readily indicated on the drawings and indicate types, qualities, and methods of installation

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of the various materials and equipment required for the Work. It is not intended to mention every item of work in the Specifications which can be adequately shown on the drawings, or to show on the drawings all items of work described or required by the Specifications even if they could have been shown.

D. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. The Contract Documents are intended to encompass all labor and materials, equipment, and transportation necessary for proper execution of the Work. Any item of work mentioned in the Specifications and not shown on the drawings, or shown on the drawings and not mentioned in the Specifications, shall be provided by CONTRACTOR as if shown in both.

E. All materials or labor for the Work which are shown either by the Drawings or the Specifications (or are reasonably inferable from the Drawings or the Specifications as being necessary to complete the work) shall be provided by CONTRACTOR, whether or not the work is expressly covered in either the Drawings and/or the Specifications. It is intended that the Work be of sound, quality construction. CONTRACTOR must furnish adequate labor and materials to cover installation of all items indicated, described, or implied in the portion of the Work to be performed.

F. Drawings and Specifications are intended to comply with all laws, ordinances, rules and regulations of authorities having jurisdiction, and where referred to in the Contract Documents, such laws, ordinances, rules and regulations shall be considered as a part of the Contract Documents within the limits specified. If CONTRACTOR observes that the drawings or Specifications are contrary to applicable law, ordinance, rule or regulation, CONTRACTOR shall immediately notify the Architect in writing, and any changes deemed necessary by the Architect shall be made as provided in the Contract Documents for changes in work. If CONTRACTOR performs any work which CONTRACTOR knows or through the exercise of reasonable diligence should have known to be contrary to any law, rule, regulation, or ordinance without seeking and obtaining clarification, CONTRACTOR shall bear any and all costs arising from it, including without limitation the costs of correction without increase or adjustment to the contract price or the time for performance.

G. Materials or work described in words which have a well known technical or trade meaning shall be deemed to refer to those recognized standards.

H. It is not the intention of the Contract Documents to go into detailed descriptions of any materials and/or methods commonly known to the trade under "trade name" or "trade term." The mere mention or notation of such "trade name" or "trade term" shall be considered a sufficient notice to CONTRACTOR that it will be required to complete the Work so named with all its incidental and accessory items according to the best practices of the trade.

I. Naming any material and/or equipment requires CONTRACTOR to furnish and install the named material/equipment, including all incidental and accessory items and/or labor necessary to achieve full and complete functioning of the material and/or equipment according to the best practices of the trade(s) involved, unless specifically noted otherwise.

J. Figured dimensions on drawings shall govern, but work not dimensioned shall be as directed. Work not particularly shown or specified shall be the same as similar parts that are shown or specified. Large scale drawings shall take precedence over smaller scale drawings as to shape and details of construction. Specifications shall govern as to materials, workmanship, and installation procedures, provided however that the drawing or specification calling for the higher quality material or workmanship shall prevail, without additional cost to OWNER.

K. In case of inconsistencies in the descriptions of work to be done, equipment to be provided or material to be used, it is intended that the more stringent, higher quality, and greater quantity of work shall apply, without additional cost to OWNER.

L. All items indicated on the drawings or in the Specifications as future items require CONTRACTOR to provide all the mechanical, electrical, and other necessary service hookups or provisions required to make the equipment function as intended. Such items shall be provided to the location where the future item is indicated to be installed.

M. In the event of an inconsistency between the Construction Agreement or General Conditions and the other various

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Contract Documents, the Construction Agreement or General Conditions shall control.

N. Drawings and specifications are intended to be fully cooperative and to agree. If CONTRACTOR observes that drawings and Specifications are in conflict, CONTRACTOR shall promptly notify the Architect in writing, requesting clarification. Should CONTRACTOR commence work on any part of the Work without seeking clarification, CONTRACTOR waives any claim for extra work or damages as a result of any ambiguity, conflict, or lack of information. Questions regarding interpretation of drawings and Specifications shall be clarified by the Architect in writing.

O. If CONTRACTOR or its subcontractors, material, or equipment suppliers, or any of their officers, agents, and employees performs, permits, or causes the performance of any work to be done under the Contract Documents which it knows, or should have known, to be in error, inconsistent, or ambiguous, or not sufficiently detailed or explained, CONTRACTOR shall bear any and all resulting costs, including without limitation the costs of correction without increase or adjustment to the contract price or the time for performance.

P. Should clarification by the Architect be deemed new or additional work, the cost shall be adjusted as provided in these General Conditions for "Changes and Extra Work," provided however that requirements calling for the higher quality material or workmanship shall prevail without additional cost to OWNER or time adjustment.

Q. In the event the Architect determines that CONTRACTOR's requests for clarification or interpretation are not justified, or do not reflect adequate, competent supervision or knowledge by CONTRACTOR, or by the subcontractors, CONTRACTOR shall be required to pay the Architect’s reasonable and customary fees in processing and responding to such requests.

R. Some drawings or other documents may be required of CONTRACTOR. If CONTRACTOR performs, permits, or causes the performance of any work under the documents prepared by or on the behalf of CONTRACTOR which document is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, CONTRACTOR shall bear any and all resulting costs, including, without limitation, the cost of correction, without increase to or adjustment in the contract price or the time for performance. In no case shall any subcontractor proceed with the work if uncertain without CONTRACTOR’S written direction and/or approval.

S. If it is found at any time, whether before or after completion of the work, that CONTRACTOR has varied from the drawings and/or Specifications in materials, quality, form, or finish, or in the amount or value of the materials and labor used, the Architect shall make a recommendation either: (1) that all such improper work should be removed, remade, and replaced, and all work disturbed by these changes be made good at CONTRACTOR'S sole expense; or (2) that OWNER deduct from any amount due CONTRACTOR the sum of money equivalent to the difference in value between the work performed and that called for by the drawings and Specifications. The Architect shall determine such difference in value. At its option, OWNER may pursue either recommendation made by the Architect.

ARTICLE 13 – DETAIL DRAWINGS AND SPECIFICATIONS

A. In case of ambiguity, conflict, or lack of information, the Architect shall furnish additional instructions, by means of drawings or otherwise, necessary for proper execution of the Work. All drawings and instructions shall be consistent with the Contract Documents, true developments of them, and reasonably inferable from them. Any additional instructions shall be furnished with reasonable promptness, provided that CONTRACTOR informs the Architect of the relationship of the request to the critical path of construction.

B. Work shall be executed in conformity with the Contract Documents and CONTRACTOR shall do no work without proper drawings and instructions.

C. The Architect will furnish necessary additional details to more fully explain the work, which shall be considered as part of the Contract Documents.

D. Should any details be more elaborate, in the opinion of CONTRACTOR, than scale drawings and specifications warrant,

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CONTRACTOR shall give written notice to the Architect within five days of receipt of the details. In case no notice is given to the Architect within five days, it will be assumed the details are reasonable development of the scale drawings. In case notice is given, the details will be considered and if found justified the Architect will either modify the drawings or shall recommend to OWNER a change order for any extra work involved.

E. All parts of the construction shall be of the best quality of their respective kinds and CONTRACTOR shall use all diligence to become fully involved in the required construction and finish, and in no case to proceed with the different parts of the Work without first obtaining from the Architect directions and/or drawings as may be necessary for proper performance of the Work.

ARTICLE 14 – SHOP DRAWINGS AND SUBMITTALS

A. The term "shop drawing" shall be understood to include, but not be limited to detail design calculations, fabrication and installation drawings, lists, graphs, and operating instructions.

B. CONTRACTOR shall check and verify all field measurements and shall promptly submit shop or setting drawings, schedules, and material lists required for the work of various trades, checked and approved by CONTRACTOR.

C. All submittals of shop drawings, catalog cuts, data sheets, schedules, and material lists shall be complete and shall conform to contract drawings and specifications. Except where the preparation of a shop drawing is dependent upon the approval of a prior shop drawing, all shop drawings pertaining to the same class or portion of the work shall be submitted simultaneously.

D. Shop drawings shall be submitted at a time sufficiently early to allow review by the Architect and the Division of State Architect (DSA) if required, and to accommodate the rate of construction progress required under the Contract Documents. CONTRACTOR will be required to pay the Architect’s reasonable and customary fees to expedite review of shop drawings which are not submitted in timely fashion.

E. Calculations of a structural nature must be approved by the DSA.

F. All shop drawing submittals shall be accompanied by an accurately completed transmittal form using the format provided by OWNER. Any shop drawing submittal not accompanied by the transmittal form, or where all applicable items on the form are not completed, will be returned for resubmittal. CONTRACTOR may authorize a material or equipment supplier to deal directly with the Architect with regard to shop drawings, however ultimate responsibility for the accuracy and completeness of the information contained in the submittal shall remain with CONTRACTOR.

G. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of shop drawings on various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. At its option, CONTRACTOR or suppliers may obtain quantities of the shop drawing transmittal form at reproduction cost from the Architect.

H. Coordination
1. Prepare or have prepared high level detailed Shop Drawings in plan view, with cross-sections as necessary, indicating the proposed installation plan for installations of all trades for the project. These Drawings should depict actual elevations and linear dimensions, as well as all routing changes, transitions, major offsets, deck and structural attachments deemed necessary to accomplish the installation. Individual Shop Drawings may be prepared for each trade working within the designated space or area; however, the coordination of the consolidated installation shall remain the responsibility of the Contractor. These Shop Drawings shall be provided to each Subcontractor having Work in each area for coordination. Any fittings, offsets or other changes due to coordination shall be at no additional cost to Owner.
2. Whereas the Drawings are diagrammatic, showing only the general arrangement of the systems, Contractor shall

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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, piping and/or conduit 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.

3. 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 conditions affecting all the Work and shall arrange such Work accordingly, furnishing such fittings, equipment, valves, accessories, offsets, etc., as may be required, regardless of size or cost, to meet such conditions, at no additional cost to the Owner.
4. Coordination changes are not design changes and shall be provided at no additional cost to Owner. Any guidance, drawing or clarification issued by the Architect or Engineer to assist the Contractor or their sub-contractors in their coordination during construction are not design changes and shall be provided at no additional cost to Owner.
5. Resolve differences or disputes between subcontractors and materials suppliers concerning coordination, interference, or extent of work between sections. The Contractor's decisions, if consistent with the Contract Documents, shall be final. The Architect and their Consultants are not required to coordinate work between sections and will not do so. Any changes required that affect the design intent shall be presented to and approved by the Architect and Engineer of Record.
6. The coordinated Shop Drawings must be signed off by HVAC, Plumbing, Fire Sprinkler, Electrical, Framing, Ceiling Installation, and Data and Low Voltage Subcontractors.
7. The signed off Shop Drawings shall be submitted to the Architect for review prior to commencement of installation.
8. Provide reviewed Shop Drawings to each Subcontractor having Work in each area.

I. CONTRACTOR’s review and approval of shop drawings shall include the following stamp:

"CONTRACTOR has reviewed and approved not only the field dimensions but the construction criteria and has also made written notation regarding any information in the shop drawings that does not conform to the Contract Documents. This shop drawing has been coordinated with all other shop drawings received to date by CONTRACTOR and this duty of coordination has not been delegated to subcontractors, material suppliers, the Architect, or the engineers on this Project.

_____
Signature of CONTRACTOR"

J. The Architect’s review of shop drawings will be limited to checking for general agreement with the Contract Documents and shall in no way relieve CONTRACTOR of responsibility for errors or omissions contained in them, nor shall the review operate to waive or modify any provision contained in the Contract Documents. The Architect’s approval of the drawings or schedules shall not relieve CONTRACTOR of its responsibility for deviations from drawings or specifications unless CONTRACTOR has called the Architect’s attention to the deviations, in writing, at the time of submission, and secured the Architect’s written approval.

K. Fabricating dimensions, quantities of material, applicable code requirements, and other contract requirements shall be CONTRACTOR’s responsibility.

L. Within 21 calendar days after receipt of shop drawings, the Architect will return one or more prints of each drawing to CONTRACTOR with the Architect’s comments noted on them.

M. If prints of the shop drawings are returned to CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision of the drawings will not be required. If prints of the shop drawings are returned to CONTRACTOR marked "MAKE CORRECTIONS

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NOTED," formal resubmittal of the drawings will not be required. If prints of the shop drawings are returned to CONTRACTOR marked "REVISE AND RESUBMIT," CONTRACTOR shall revise the drawings and resubmit six copies of the revised drawings to the Architect. If prints of the shop drawings are returned to CONTRACTOR marked "REJECTED; RESUBMIT," CONTRACTOR shall resubmit six new copies of the drawing to the Architect.

N. CONTRACTOR shall make a complete and acceptable submittal to the Architect by the second submission of drawings. OWNER shall withhold funds due to CONTRACTOR to cover additional costs of the Architect's review beyond the second submission and any other costs incurred by OWNER.

O. Fabrication of an item shall not be commenced before the Architect has reviewed the pertinent shop drawings and returned copies to CONTRACTOR marked "NO EXCEPTIONS TAKEN," or "MAKE CORRECTIONS NOTED." Revisions indicated on shop drawings shall be considered changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis of claims for extra work.

P. No work represented by required shop drawings shall be purchased or commenced until the applicable submittal has been approved. The work shall conform to the approved shop drawings and all other requirements of the Contract Documents. CONTRACTOR shall not proceed with any related work which may be affected by the work covered under shop drawings until the applicable shop drawings have been approved, particularly where piping, machinery, equipment, and/or the required arrangements and clearances are involved.

Q. CONTRACTOR SHALL HAVE NO CLAIM FOR DAMAGES OR EXTENSION OF TIME DUE TO ANY DELAY RESULTING FROM CONTRACTOR HAVING TO MAKE REQUIRED REVISIONS TO SHOP DRAWINGS UNLESS THE ARCHITECT'S REVIEW OF THE DRAWINGS IS DELAYED BEYOND THE TIME PROVIDED IN THE CONTRACT DOCUMENTS AND CONTRACTOR CAN ESTABLISH THAT THE ARCHITECT'S DELAY IN REVIEW ACTUALLY RESULTED IN A DELAY IN CONTRACTOR'S CONSTRUCTION SCHEDULE. CONTRACTOR SHALL NOT BE ENTITLED TO ANY CLAIM FOR DAMAGES RESULTING FROM DSA REVIEW EXTENDING BEYOND 15 CALENDAR DAYS AFTER SUBMITTAL. HOWEVER, OWNER MAY CONSIDER AN EXTENSION OF TIME DUE TO ANY DELAY CAUSED BY DSA REVIEW.

ARTICLE 15 – SAMPLES

A. Within 35 calendar days following award of contract, or a shorter time as circumstances require, CONTRACTOR shall furnish for approval all samples required in the Specifications, together with catalogs and supporting data required by the Architect. This provision shall not authorize any extension of time for performance of the work. The Architect shall review the samples, as to conformance with design concept of work and compliance with information given in the Contract Documents, and approve or disapprove them within 10 working days from receipt.

B. Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standards of the American Society for Testing and Materials.

C. Upon demand of the Architect or OWNER, designated samples shall be submitted or tests or examinations and considered before incorporation into the Work. CONTRACTOR shall be solely responsible for delays due to samples not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples which are of value after testing will remain the property of CONTRACTOR.

D. Work commenced before approval of samples subject to tests or examinations shall be at the sole risk of CONTRACTOR. CONTRACTOR alone shall bear the entire cost of repair, removal, or replacement of work commenced prior to approval of samples subject to tests or examinations.

ARTICLE 16 – WORK TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS

A. CONTRACTOR shall give all notices and comply with all laws, ordinances, rules, and regulations relating to the Work required by the Contract Documents.

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B. If CONTRACTOR observes that the Drawings and/or Specifications are at variance with any applicable law, ordinance, rule, or regulation, CONTRACTOR shall promptly notify the Architect in writing, and any changes deemed necessary by the Architect shall be made as provided in the Contract Documents for changes in work. If CONTRACTOR performs any work which CONTRACTOR knows, or through the exercise of reasonable care should have known, to be contrary to any laws, ordinances, rules, or regulations, and fails to notify the Architect, CONTRACTOR shall bear all arising costs, including without limitation the costs of correction without increase or adjustment to the contract price or the time for performance. Where Plans, Drawings, or Specifications state that materials, processes, or procedures must be approved by the DSA, State Fire Marshall, or other body or agency, CONTRACTOR shall be responsible for satisfying the requirements of those bodies or agencies.

ARTICLE 17 – WORK AND MATERIALS

A. Except as otherwise specifically stated in the Contract Documents, CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of every kind, and all other services and facilities necessary to perform and complete the Work within the time specified.

B. Unless otherwise specified, all materials shall be new and the best of their respective kinds and grades as noted or specified, and workmanship shall be of good quality.

C. Materials shall be furnished in ample quantities and at times to ensure uninterrupted progress of the work and shall be properly stored and protected. CONTRACTOR shall be solely responsible for any damage or loss by weather, theft, or other causes to materials or work under the Contract Documents. After issuance of the Notice to Proceed by OWNER, CONTRACTOR shall place orders for materials and/or equipment as specified so that delivery may be made without delays to the Work. Upon demand from the Architect, CONTRACTOR shall furnish to the Architect documentary evidence showing that orders have been placed.

D. In the event of failure to comply with the above instructions, OWNER reserves the right to place orders for any materials and/or equipment as it may deem advisable in order that the Work may be completed at the date specified in the Contract Documents, and all expenses incidental to procuring the materials and/or equipment shall be paid for by CONTRACTOR.

E. No material, supplies, or equipment for work under the Contract Documents shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest in all or any part is retained by the seller or supplier. CONTRACTOR warrants good title to all material, supplies, and equipment installed or incorporated in the Work, and upon completion of all work agrees to surrender the premises to OWNER, together with all improvements and appurtenances constructed or placed by CONTRACTOR, free from any claims, liens, or charges. CONTRACTOR further agrees that neither CONTRACTOR nor any person, firm, or corporation furnishing any materials or labor for any work covered by the Contract Documents shall have any right to a lien upon the premises or any improvement or appurtenance, except that CONTRACTOR may install metering devices or other equipment of utility companies or political subdivisions, title to which is commonly retained by the utility company or political subdivision. In the event of the installation of any metering device or equipment, CONTRACTOR shall advise OWNER as to its OWNER. Nothing contained in this article however shall defeat or impair the legal right of persons furnishing material or labor to look to funds due and owing CONTRACTOR for payment. This provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

F. Title to new materials and/or equipment, and attendant liability for their protection and safety, shall remain in CONTRACTOR until incorporated in the Work and accepted by OWNER. No part of these materials and/or equipment shall be removed from their place of storage except for immediate installation in the Work, and CONTRACTOR shall keep an accurate inventory of all materials and/or equipment in a manner satisfactory to OWNER or its authorized representative.

G. Price, fitness, and quality being equal with regard to supplies, OWNER may prefer supplies grown, manufactured, or

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produced in California. OWNER may next prefer supplies partially manufactured, grown, or produced in California provided the bids of suppliers or the prices quoted by them do not exceed by more than five percent the lowest bids/prices quoted by out-of-state suppliers, the major portion of the manufacture of the supplies is not done outside of California, and the public good will be served. (Government Code Sections 4330-4334)

ARTICLE 18 – CONTRACTOR'S SUPERVISION, PROSECUTION, AND PROGRESS

A. Unless personally present on premises where the work is being done, CONTRACTOR shall maintain competent project supervision at all times during working hours, which includes but is not limited to a Project Manager and all additional personnel necessary to maintain progress of the Project within the approved contract schedule satisfactory to the Architect. The Project Manager shall not be changed except with the written consent of the Architect. The Project Manager shall represent CONTRACTOR in its absence and all directions given to the Project Manager shall be binding on CONTRACTOR.

B. Unless personally present on premises where the work is being done, CONTRACTOR shall maintain a competent Superintendent on the work site at all times, satisfactory to the Architect. The Superintendent shall not be changed except with the written consent of the Architect. The Superintendent shall represent CONTRACTOR in its absence and all directions given to the Superintendent shall be binding on CONTRACTOR.

C. Before commencing the Work, CONTRACTOR shall give written notice to OWNER and the Architect of the name, qualifications, and experience of CONTRACTOR’s proposed Project Manager and Superintendent. Should the CONTRACTOR’S project manager or superintendent be deemed unacceptable to the OWNER at any time during the performance of the Work, the CONTRACTOR shall replace the project manager or superintendent without cost or liability to the OWNER.

D. CONTRACTOR shall supervise and direct the work competently and efficiently, devoting such attention and applying such skills as may be necessary to perform the Work in accordance with the Contract Documents.

E. Before commencing the Work, CONTRACTOR shall verify all grade lines, levels, and dimensions indicated on the Drawings and shall report any apparent error or inconsistencies to the Architect before commencing work. CONTRACTOR shall not proceed until reported apparent errors and inconsistencies are corrected or otherwise resolved by the Architect and OWNER.

F. CONTRACTOR shall establish and maintain all construction grades, lines, and bench marks, and be responsible for their accuracy and protection.

G. CONTRACTOR represents itself to OWNER as a skilled, knowledgeable, and experienced CONTRACTOR who will or has carefully studied and compared the Contract Documents with each other, and CONTRACTOR further represents it has or shall at once report to the Architect any errors, inconsistencies, or omissions discovered in them. CONTRACTOR shall be liable to OWNER for damage resulting from errors, inconsistencies, or omissions in the Contract Documents that CONTRACTOR either:

1. Recognized and knowingly failed to report; or
2. Should have recognized, and which a similarly skilled, knowledgeable, and experienced contractor would have discovered, which CONTRACTOR negligently failed to recognize and report.

H. CONTRACTOR shall verify all indicated dimensions before ordering materials or equipment, or before performing work. CONTRACTOR shall take field measurements, verify field conditions, and carefully compare the field measurements and conditions and other information known to CONTRACTOR with the Contract Documents before commencing work. Errors, inconsistencies, or omissions discovered shall be reported to OWNER at once. Upon commencement of any item of work, CONTRACTOR shall be responsible for dimensions related to the item of work and shall make any corrections necessary to make work properly fit at no additional cost to OWNER. This responsibility for verification of dimensions is a

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non-delegable duty and may not be shifted to subcontractors or agents.

I. Omissions from the Plans, drawings, or Specifications, or the mis-description of details of work which are manifestly necessary to carry out the intent of the Plans, drawings, and Specifications, or which are customarily performed, shall not relieve CONTRACTOR from performing such omitted or mis-described work, but they shall be performed as if fully and correctly set forth and described in the Plans, drawings, and Specifications.

J. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. CONTRACTOR shall be responsible to see that the finished work complies accurately and completely with the Contract Documents

ARTICLE 19 – SUBSTITUTIONS

A. CONTRACTOR shall follow all instructions and requirements for substitutions set forth in the Instructions to Bidders and in this article.

B. OWNER desires that whenever possible all substitution requests be resolved prior to contract award. For that reason, no substitution requests, whether of “equal” materials, process, service, equipment, or otherwise, may be made after the bid date except by the express written permission of OWNER and on such terms as OWNER may require, or in the case of an emergency as where a specified material, process, service, equipment or other item has become unavailable through no fault of CONTRACTOR.

C. As to any emergency substitution request, CONTRACTOR shall timely submit the request, together with substantiating data, including substitution warranties, in order to prevent delays arising from the substitution request.

D. With respect to all proposed substitutions:

1. Every substitution request shall be on the substitution request form available in Section 01 2500 of the Specifications and shall be accompanied by all substantiating data.
2. CONTRACTOR shall furnish with its substitution request all drawings, Specifications, samples, performance data, calculations, and other information as may be required to assist the Architect and OWNER in determining whether the proposed substitution is acceptable, including but not limited to the following:
    a. Identify product by Specifications section and article numbers; provide manufacturer's name and address, trade name of product, and model or catalog number; list fabricators and suppliers as appropriate.
    b. Attach product data as required by Specifications.
    c. List similar projects using product, dates of installation, and names of Architect/Engineer and OWNER.
    d. Give itemized comparison of proposed substitution with specified product, listing variations and reference to Specifications section and article numbers.
    e. Give quality and performance comparison between proposed substitution and specified product.
    f. Give cost data comparing proposed substitution with specified product and amount of net change to contract sum.
    g. Identify any required license fees or royalties.
    h. List availability of maintenance services and replacement materials.
    i. State the effect of the substitution on the construction schedule, and the effect of any changes required in other work or products; include a document waiving rights to additional payment or time that may become necessary because of the failure of the substitution to perform adequately.
3. OWNER is not responsible for locating or securing any information which is not included in any substantiating data.
4. The proposed substitution must be, in the opinion of OWNER, substantially equal or better in every respect to what is specified. The burden of proof as to the quality or suitability of proposed substitutions shall be borne by CONTRACTOR.
5. With the assistance of the Architect, OWNER shall be the sole judge as to the quality and suitability of proposed

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substituted items, and decisions of the OWNER shall be final and conclusive.

6. All substitutions shall be submitted with a substitution warranty. Any substitution requests submitted without the warranty will not be considered, but will be returned to CONTRACTOR without review or evaluation. If required by OWNER, CONTRACTOR shall provide an extended warranty for the requested substitution.
7. No extension of time shall be granted if the extension request arises from a request for substitution, whether by reason of delay in making the request, delay in OWNER's approval of the request, delay in obtaining other governmental approvals, delay in coordination of substitutions into or with other work or equipment, delay in obtaining the substituted items, increased time of installation or performance, or for any other reason.
8. Once any part or all of a substitution request has been denied, it is considered always denied.
9. A substitution request shall be submitted separately from any other submittal and shall be clearly marked as a "request for substitution."
10. If the substitution is accepted, CONTRACTOR shall bear all costs and be solely and directly responsible for fitting accepted substitute materials and equipment into the available space in a manner acceptable to the Architect and OWNER, and for the proper operation of the substituted equipment with other equipment with which it may be associated. In addition, CONTRACTOR shall acknowledge in writing on CONTRACTOR's letterhead, that CONTRACTOR accepts complete responsibility for additional costs required for modifications to building or other materials and equipment and additional coordination of work.
11. Any additional time, including Architect review time, and any additional coordination, inspection, materials, equipment, labor, tools, warranty extension, or other items necessary to either accomplish a substitution or arising as a result of a substitution request will be the sole responsibility of and at the sole expense of CONTRACTOR, who will reimburse OWNER for review or redesign services associated with approval by the Architect and obtaining all required approvals by other agencies.
12. CONTRACTOR shall also be responsible for meeting all code requirements whether local, city, county, state, federal, or other.

F. If the substitution requested by CONTRACTOR is not substantially equal or better in every respect to that specified, in the opinion of DISTRCT, CONTRACTOR shall provide and/or perform as specified.

G. In the event CONTRACTOR furnishes a material, process, service, or equipment more expensive than that specified, the difference in cost of such material, process, service, or equipment furnished shall be borne by CONTRACTOR. Any difference in cost between an approved substitution which is lower in cost than the originally specified item shall be refunded by CONTRACTOR to OWNER.

H. Any engineering, design, or approval agencies' fees required to make adjustments in material or work of all trades directly or indirectly affected by the approved substitution shall be borne entirely by CONTRACTOR. If a substitution is approved, any additional time required to obtain shop drawings, order materials, make modifications, perform testing, or whatever else is necessary to make the substitution function properly in place of the originally specified item shall be borne solely by CONTRACTOR. It will also be CONTRACTOR's responsibility to acquire and install the substituted item in the time frame allowed under the Contract Documents. No time extension need be granted to CONTRACTOR for any substitution, except as OWNER in its sole discretion may deem appropriate.

ARTICLE 20 – PROTECTION OF WORK AND PROPERTY

A. CONTRACTOR shall be responsible for all damages to persons or property which occur as a result of CONTRACTOR's fault or negligence in connection with performance under the Contract Documents, and for the proper care and protection of all materials delivered and work performed until completion and final acceptance by OWNER. With the exception of damage to the Work caused by "acts of God," as defined in Public Contract Code 7105, CONTRACTOR assumes the risk for damage or destruction of any or all work performed under the Contract Documents. CONTRACTOR shall adequately protect adjacent property from settlement or loss of lateral support as provided by law and this article.

B. CONTRACTOR shall take, and require subcontractors to take, all necessary precautions for safety of workers and shall comply with all applicable federal, state, local, and other safety laws, standards, orders, rules, regulations, and building

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codes to prevent accidents or injury to persons on, about, or adjacent to the work site and to provide a safe and healthful place of employment. CONTRACTOR shall furnish, erect, and properly maintain at all times, as directed by OWNER or the Architect, or required by conditions and progress of work, all necessary safety devices, safeguards, construction canopies, signs, audible devices for protection of the blind, safety rails, belts and nets, barriers, lights, and watchmen for protection of workers and the public, and shall post danger signs warning against hazards created by such features in the course of construction. CONTRACTOR shall designate a responsible employee whose duty shall be to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety, and health of workers. The name and position of the person so designated shall be reported in writing to OWNER by CONTRACTOR. CONTRACTOR shall correct any violation of safety laws, standards, orders, rules, or regulations. Upon issuance of a citation or notice of violation by the California Division of Occupational Safety and Health, the violation shall be corrected immediately by CONTRACTOR at CONTRACTOR's expense.

C. In an emergency affecting safety of life, work, or adjoining property, CONTRACTOR is permitted to act at its discretion without special instruction or authorization from the Architect or OWNER to prevent any threatened loss or injury, and CONTRACTOR shall act if authorized or instructed by the Architect or OWNER. Any compensation claimed by CONTRACTOR for emergency work shall be determined according to the Contract Documents.

D. CONTRACTOR shall (unless waived by OWNER in writing):

1. Provide heat, covering, and enclosures necessary to protect all work, materials, equipment, appliances, and tools against damage by weather conditions;
2. Take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, adjoining property, and structures, and avoid damage to them, and repair any damage caused by construction operations;
3. When performing new construction on existing sites, become informed and take into specific account the maturity of the students on the site, and perform work which may interfere with school routine before or after school hours; enclose the work area with a substantial barricade and arrange work to cause a minimum of inconvenience and danger to students and staff in their regular school activities;
4. Provide substantial barricades around any shrubs or trees to be preserved;
5. Deliver materials to the building area over the route designated by the Architect;
6. Take preventative measures to eliminate excessive dust;
7. Confine apparatus, storage of materials, and the operations of its workers within limits indicated by law, ordinances, permits, or directions of the Architect and not unreasonably encumber the premises with materials;
8. Enforce all instructions of OWNER and the Architect regarding signs, advertising, fires, danger signals, barricades, and smoking, and require that all persons employed on the Work comply with all regulations while on the construction site;
9. Exercise reasonable care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners; if markers are disturbed, they shall be replaced by an approved civil engineer at no cost to OWNER.

ARTICLE 21 – USE OF ASBESTOS OR LEAD MATERIALS/PRODUCTS

A. CONTRACTOR shall not use any asbestos or lead containing products or materials in performing the work under the Contract Documents. Upon completion of the Project, CONTRACTOR shall certify in writing to OWNER that no asbestos or lead containing materials or products were used by CONTRACTOR or any subcontractor in performing the work required by the Contract Documents.

B. Should asbestos containing materials be installed by CONTRACTOR in violation of this certification, or if removal of asbestos containing materials is otherwise a part of the Project, decontaminations and removals will meet the following criteria:

1. Decontamination and removal of work found to contain asbestos or work installed with asbestos containing

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equipment shall be done only under the supervision of a qualified consultant, knowledgeable in the field of asbestos abatement and accredited by Cal-OSHA.

2. Any asbestos removal contractor shall be a Cal-OSHA accredited contractor qualified in the removal of asbestos and shall be chosen and approved by the asbestos consultant who shall have sole discretion and final determination in this matter.
3. The asbestos consultant shall be chosen and approved by OWNER who shall have sole discretion and final determination in this matter.
4. The work will not be accepted until asbestos contamination is reduced to levels deemed acceptable by the asbestos consultant.

C. Cost of all asbestos removal, including but not limited to the cost of an asbestos removal contractor, the cost of the asbestos consultant, analytical and laboratory fees, time delays, and additional costs as may be incurred by OWNER shall be borne entirely by CONTRACTOR.

D. Interface of work for the Project with work containing asbestos shall be executed by CONTRACTOR at CONTRACTOR's risk and at CONTRACTOR's discretion with full knowledge of the currently accepted standards, hazards, risks, and liabilities associated with asbestos work and asbestos containing materials. By execution of the Construction Agreement, CONTRACTOR acknowledges the above and agrees to hold harmless OWNER, its governing board, or other governing body, employees, agents, and the Architect and assigns for all asbestos liability which may be associated with this work. CONTRACTOR further agrees to instruct CONTRACTOR's employees with respect to the above standards, hazards, risks, and liabilities.

E. Should lead containing materials be installed by CONTRACTOR in violation of this certification, or if removal of lead containing materials is part of the Project, decontaminations and removals will meet the criteria approved by OWNER.

F. The cost of all removals or decontaminations resulting from the installation of materials in violation of this certification shall be at the sole expense of CONTRACTOR.

ARTICLE 22 – LAYOUT AND FIELD ENGINEERING

All field engineering required for laying out this Work and establishing grades for earthwork operations shall be furnished by CONTRACTOR at its expense. The work shall be done by a qualified civil engineer approved by the Architect. "As-Built" drawings of site development and utilities' locations and inverts shall be prepared by an approved civil engineer.

ARTICLE 23 – UTILITIES

A. All utilities, including but not limited to electricity, water, gas, and telephone used on the Work, shall be furnished and paid for by CONTRACTOR. CONTRACTOR shall furnish and install necessary temporary distribution systems, including meters if necessary, from distribution points to points on the site where the utility is necessary to perform the work. Upon completion of the Work, CONTRACTOR shall remove all temporary distribution systems.

B. If this Project is for an addition to an existing facility, CONTRACTOR may use existing OWNER utilities, with the written permission of OWNER, by making prearranged payments to OWNER for utilities used by CONTRACTOR for construction.

ARTICLE 24 – UTILITIES: EXISTING, REMOVAL, RESTORATION

A. Existing Utility Lines:

1. Removal and Relocation of Existing Utility Lines: Pursuant to Government Code section 4215, the OWNER assumes the responsibility for removal, relocation, and protection of utilities located on the Site at the time of commencement of construction under this Contract with respect to any such utility facilities which are not identified in the drawings and specifications made part of the invitation to bid. The CONTRACTOR shall not be

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assessed for liquidated damages for delay in completion of the Project caused by failure of the OWNER to provide for removal or relocation of such utility facilities. OWNER shall compensate the CONTRACTOR for the costs of locating, repairing damage not due to the failure of the CONTRACTOR to exercise reasonable care, removing or relocating such utility facilities, and for equipment necessarily idle during such work.

2. Assessment of Liquidated Damages: These sub-sections shall not be construed to preclude assessment against the CONTRACTOR for any other delays in completion of the Work. Nothing in these sub-sections shall be deemed to require the OWNER to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred from the presence of other visible facilities, such as buildings, or meter junction boxes on or adjacent to the Site.
3. Notification: If the CONTRACTOR, while performing work under this Contract, discovers utility facilities not identified by the OWNER in the Contract plans or specifications, then CONTRACTOR shall immediately notify the OWNER and the utility in writing.
4. Underground Utility Clearance: It shall be CONTRACTOR'S sole responsibility to timely notify all public and private utilities serving the Site prior to commencing work. The CONTRACTOR shall notify and receive clearance from any cooperative agency, such as Underground Service Alert, in accordance with Government Code section 4216, et seq. CONTRACTOR shall promptly provide a copy of all such notifications to the OWNER.

B. Pursuant to Government Code section 4215, OWNER assumes the responsibility for removal, relocation, and protection of utilities located on the construction site at the time of commencement of construction with respect to any main or trunkline utility facilities which are not identified in the Plans and Specifications. CONTRACTOR shall not be assessed any delay in completion of the Project caused by OWNER's failure to provide for removal or relocation of utility facilities. OWNER shall compensate CONTRACTOR for the costs of locating, repairing damage not due to CONTRACTOR's failure to exercise reasonable care, and removing or relocating any utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment necessarily idle during the work, using the provisions of the Contract Documents on changes in the Work.

C. This article shall not be construed to preclude assessment against CONTRACTOR for any other delays in completion of the Work. Nothing in this article shall be deemed to require OWNER to indicate the presence of existing service laterals or appurtenances whenever the presence of those utilities on the construction site can be inferred from the presence of other visible facilities, such as buildings or meter junction boxes on or adjacent to the construction site.

D. If while performing work under the Contract Documents, CONTRACTOR discovers utility facilities not identified by OWNER in the contract Plans or Specifications, CONTRACTOR shall immediately notify OWNER and the utility in writing.

E. As part of the work to be performed, CONTRACTOR shall provide the notices and proceed in accordance with Government Code Sections 4216.2, 4216.3, and 4216.4, and pay all fees charged pursuant to Government Code Section 4216, et seq.

ARTICLE 25 – SANITARY FACILITIES

CONTRACTOR shall provide temporary sanitary toilet facilities as required by law and additional facilities as directed by the Project Inspector for the use of all workers. The facilities shall be maintained in a sanitary condition and left at the site until removal is directed by the Project Inspector. Use of toilet facilities contained in the Work under construction shall not be permitted except with the approval of the Project Inspector.

ARTICLE 26 – LABOR—FIRST AID

CONTRACTOR shall maintain emergency first aid treatment on the Project for all workers of CONTRACTOR or any subcontractors on the Project and shall ensure compliance with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C.A., Section 651 et seq.).

ARTICLE 27 – CHANGES AND EXTRA WORK

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A. As used in this article, the following definitions shall apply:

1. "Labor" means any amount(s) paid directly to non-supervisory workers (up to and including general foreman) in the form of employee wages and benefits in order to perform the Work. These costs shall include documented payroll cost (wages, payroll taxes, fringe benefits, workers compensation) and general liability insurance as submitted and approved by OWNER.
2. "Material" means all products, equipment, and devices that are physically incorporated into the work to be performed. Any costs or equipment, facilities, or services not physically incorporated in the work to be performed but necessary for its completion shall be considered "overhead." Cash or trade discounts available to the purchaser shall be credited to OWNER. Material costs secured by other than direct purchase and billing will be the price paid to the actual supplier as determined by OWNER. Markup will not be allowed. If cost of materials is deemed excessive, the price will be determined to be the lowest current wholesale price delivered to the site, less cash or trade discount.
3. "Equipment" costs shall include transportation and setup costs, if CONTRACTOR can substantiate that the Work could not have been performed economically with equipment already at the site. Rental costs shall not exceed rates set forth in the then-current "Rental Rate Blue Book," published by Dataquest, Inc., Palo Alto, California, as adjusted to this region. Owned equipment costs shall not exceed rates set forth in the then-current "Cost Reference Guide for Construction Equipment," published by Dataquest. Hours of usage must be documented by CONTRACTOR in order to be the basis for equipment utilization charges for Change Orders. CONTRACTOR will not be allowed to charge for idle equipment.
4. "Overhead" means any necessary costs and expenses incurred in the performance of the Work excluding "labor," "materials," and "equipment" as defined above.

B. Without invalidating the Contract Documents, OWNER may order extra work or make changes by altering, adding to, or deducting from the Work, and the contract sum shall be adjusted accordingly. All the work shall be subject to the conditions of the Contract Documents, except that any claim for extension of time caused by changes shall be adjusted at the time of ordering the change, with adjustments to time being made after CONTRACTOR has justified, through documentation, the impact on the critical path of the Project.

C. In giving instructions, the Architect shall have authority to make minor changes in the Work not involving a change in cost and not inconsistent with purposes of the Project, subject to DSA approval. If so authorized by OWNER, OWNER's Representative, if one has been identified, may authorize changes in work involving a change in cost that does not exceed $15,000. Otherwise, except in an emergency endangering life or property, no extra work or change shall be performed unless pursuant to a written order from OWNER, and no claim for any addition to the contract amount or time shall be valid unless by written order of OWNER. A Change Order will not be officially approved until ratified by OWNER's Board of Trustees or other governing body.

D. If the Architect determines that the work required to be done constitutes extra work outside the scope of the Contract Documents, the Architect shall send a request for a detailed proposal to CONTRACTOR. CONTRACTOR will respond with a detailed proposal within five calendar days of receipt of the request for proposal. If the work is to be performed by a subcontractor, CONTRACTOR's proposal must include a bid from the subcontractor.

E. If the Architect determines the work required does not constitute extra work, or work for which CONTRACTOR may recover additional compensation, the Architect shall so notify CONTRACTOR. If CONTRACTOR is not in agreement with the determination by the Architect, CONTRACTOR shall immediately give notice of any claim as provided in the Contract Documents. CONTRACTOR shall perform the required work in timely fashion.

F. When the OWNER and CONTRACTOR are unable to reach total agreement on the terms of a change order, the ARCHITECT may issue a Construction Change Directive (CCD).

1. The CCD shall be signed by the OWNER and ARCHITECT and shall describe the scope of the change with

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reasonable specificity. The CONTRACTOR is not required to sign the CCD for it to be effective. Should the CONTRACTOR disagree with the CCD, the CONTRACTOR may make a claim in accordance with the contract documents.

2. Upon receipt of a CCD, the CONTRACTOR shall promptly proceed with the Work as directed and shall not delay performance pending agreement on compensation or time.
3. Adjustments to the Contract Sum resulting from a CCD shall be determined by one or more of the following methods. If the parties do not reach agreement on methods (a) or (b), method (c) shall apply:
   a. Mutual acceptance of a lump sum.
   b. Unit prices stated in the Contract Documents or subsequently agreed upon.
   c. Cost of the Work as defined below, plus agreed markups.
4. When cost is determined on a time and materials basis, compensation shall be limited to actual, reasonable, and necessary costs directly attributable to the CCD Work, including:
   a. Wages paid for labor in the direct employ of the CONTRACTOR.
   b. Applicable labor burden (payroll taxes, insurance, fringe benefits).
   c. Cost of materials incorporated into the Work, including delivery.
   d. Equipment costs at agreed rental rates.
   e. Payments made to Subcontractors for CCD Work.
   f. Incremental bond and insurance costs, if approved.

   No other costs shall be included unless specifically authorized.
5. The CONTRACTOR shall maintain complete and accurate records of all costs associated with CCD Work. Such records shall include daily reports identifying:
   a. Labor classifications and hours worked.
   b. Equipment utilized and duration of use.
   c. Materials delivered and incorporated.
   d. Description and location of Work performed.

   Daily records shall be submitted to the OWNER's representative and/or the Project Inspector for review and verification. Failure to maintain or submit adequate documentation may result in a determination of cost by the OWNER based on available information.
6. Pending final agreement on the adjustment to the Contract Sum, the OWNER may authorize interim payments for undisputed portions of the CCD Work based on verified costs or reasonable estimates. Such payments shall not constitute acceptance of the CONTRACTOR's asserted total cost.
7. The CONTRACTOR shall submit any request for adjustment to Contract Time associated with a CCD within the time period required by the Contract Documents. Absent such notice, the CONTRACTOR waives any claim for additional time related to the CCD. Issuance of a CCD does not, by itself, authorize an extension of Contract Time.
8. Should the CONTRACTOR agree to the terms and sign the CCD, the CCD shall be recorded as a change order. When adjustments made to the CCD result in mutual acceptance by both OWNER and CONTRACTOR, the ARCHITECT will prepare a change order for all or a part of the CCD as required.
9. For projects subject to California public contracting requirements:
   a. CCD Work performed on a time and materials basis shall comply with applicable public works accounting and recordkeeping standards.
   b. The OWNER shall have the right to examine and audit all records related to CCD Work.
   c. The CONTRACTOR shall comply with applicable claims procedures, including those set forth in California Public Contract Code § 9204.

G. Itemized Cost Breakdown: Whenever the Contractor requests an adjustment to the Contract Sum, Contractor shall submit an itemized cost breakdown in a form acceptable to the Owner, together with supporting data, for all work performed by the Contractor and each subcontractor and sub-subcontractor. The itemized breakdown shall include copies of the original subcontractor invoices or cost statements, certified payroll, invoices for material, invoices for equipment rental, and other data required to substantiate costs claimed.

H. At the discretion of OWNER, the value of any extra work, change, or deduction shall be determined in one or more of the following ways:

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1. By acceptable lump sum proposal from CONTRACTOR, a total sum for the changed work may be mutually determined by OWNER and CONTRACTOR. CONTRACTOR shall furnish a breakdown of the proposed lump sum cost satisfactory to OWNER, which shall be full and final compensation for the change, including time adjustment, in the following format:

CHANGE ORDER REQUEST			
	DESCRIPTION	**ADDED COST**	**DEDUCTIVE COST**
1	Subcontractor Labor Total *1*	$ _____	$ _____
2	Subcontractor Material Total *1,2*	$ _____	$ _____
3	Subcontractor Equipment Total *1,2*	$ _____	$ _____
4	**SUBTOTAL #1** (Sum lines 1, 2, and 3) ➔	$ _____	$ _____
5	Subcontractor Overhead and Profit for Subtotal #1 *3,5*	$ _____	$ _____
6	**SUBTOTAL #2** (Sum lines 4 and 5) ➔	$ _____	$ _____
7	Contractor Overhead and Profit for Subtotal #2 *3,5*	$ _____	$ _____
8	**SUBTOTAL #3** (Sum lines 6 and 7) ➔	$ _____	$ _____
9	Contractor Labor Total *1*	$ _____	$ _____
10	Contractor Material Total *1,2*	$ _____	$ _____
11	Contractor Equipment Total *1,2*	$ _____	$ _____
12	**SUBTOTAL #4** (Sum lines 9, 10, and 11) ➔	$ _____	$ _____
13	Contractor Overhead and Profit for Subtotal #4 *3,5*	$ _____	$ _____
14	**SUBTOTAL #5** (Sum lines 12 and 13) ➔	$ _____	$ _____
15	Contractor Bonds and Insurance *4*	$ _____	$ _____
16	**TOTAL** (Sum lines 8, 14, and 15) ➔	$ _____	$ _____
17	Other costs *6*	$ _____	$ _____
18	**GRAND TOTAL** (Sum lines 16 and 17) ➔	$ _____	$ _____

FOOT NOTES:

1: *Attach itemized list(s) indicating hours, rates, material quantity, material costs, and unit costs. Payroll taxes, fringe benefits, insurance and travel shall be included in Additive Costs and shall be credited in Deductive Costs.*

2: *State and City sales taxes shall be included in Additive Costs and shall be credited in Deductive Costs.*

3: *Refer to the Overhead and Profit Schedule below.*

4: *Contractor's bonds and insurance premium. Total cost shall not exceed 2% of the Grand Total (Line 16).*

5: *Overhead and profit shall only be allowed on the net increase.*

6: *Includes all direct and indirect costs, including but not limited to extended overhead where permitted, acceleration, cumulative effect of the change, expediting the Work, scheduling, etc.*

2. By contract unit prices contained in CONTRACTOR's original bid and incorporated in the Contract Documents, or fixed by subsequent agreement between OWNER and CONTRACTOR. Where payment for Change Orders is based

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on unit prices stipulated in CONTRACTOR's bid, those unit prices shall constitute the total equitable adjustment due for the change. If a change is ordered in an item or work covered by a contract unit price, and the change does not involve a substantial change in the character of the work from that shown on the Plans or included in the Specifications, an adjustment in payment will be made based upon the increase or decrease in quantity and the contract unit price. In the case of such an increase or decrease in a major bid Item, the use of this basis for the adjustment of payment will be limited to that portion of the change which, together with all previous changes to that item, is not in excess of 25 percent of the total cost of such item based on the original quantity and contract unit price. If a change is ordered in an item of work covered by a contract unit price, and the change does involve a substantial change in the character of the work from that shown on the Plans or included in Specifications, an adjustment in payment will be made in accordance with other sections of this article. Should any contract item be deleted in its entirety, payment will be made only for actual costs incurred prior to notification of such deletion.

3. Stipulated contract unit prices are those established by OWNER in the Contract Documents, as distinguished from contract unit prices submitted by CONTRACTOR, and may be used for the adjustment of contract changes. Whether set forth in the Contract Documents or subsequently agreed upon, all contract unit prices shall include overhead, profit, and increased premium on the Surety Bonds.
4. Time and Material (T&M): By cost of material, equipment, labor and a fee for overhead and profit. If the value is determined by this method, then the following requirements shall apply:
    a. Daily Reports by Contractor:
        .1 At the close of each working day, the Contractor shall submit a daily report to the Project Inspector for signature, on forms approved by the Owner, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day, the location of the Work, and for other services and expenditures when authorized concerning extra work items, including any schedule delay days required. An attempt shall be made to reconcile the report daily, and it shall be signed by the Inspector and the Contractor. In the event of disagreement, pertinent notes shall be entered by each party to explain points that cannot be resolved immediately. Each party shall retain a signed copy of the report. Reports by subcontractors or others shall be submitted through the Contractor. The Contractor shall organize and forward copies of the Contractor's and Inspector's reports to the Architect upon the completion of each T&M activity.
        .2 Any reports not submitted in a timely manner and not signed by the Inspector shall not be considered as a part of the costs considered for the change order. The Contractor shall notify the Inspector prior to starting the work each day.
        .3 Labor: Show names of workers, classifications, hours worked, and hourly rate. Project Superintendent expenses are not allowed.
        .4 Materials: Describe and list quantities of materials used.
        .5 Equipment: Show type of equipment, size, identification number, and hours of operation, including, and hours of operation, including loading and transportation, if applicable, and hourly/daily cost.
        .6 Other Services and Expenditures: Describe in such detail as the Owner may require.

I. Cost of the Work. The term "cost of the work" means the sum of all costs necessarily incurred and paid by the Contractor in the proper performance of the extra work required or permitted under a change order. Except as otherwise may be agreed to in writing by the Owner, such costs shall include only the following items:

1. Cost of Labor: Payroll cost of employees in direct performance of the work including:
    a. Payroll wages comparable to but no higher than prevailing wage rates for the specific job classification. Prevailing wage is inclusive of the basic hourly rate, health and welfare, pension, vacation/holiday pay only when applicable, training and "other payments" all as defined by the Director of Industrial Relations.
    b. Fringe benefit mark-up is only allowed on the prevailing wage total hourly rate. Cost of fringe benefits are limited to Social Security contributions, Medicare, Federal and State Unemployment tax, State Disability tax and workers compensation but in no case shall they exceed 25% total.
        (i) Provide full breakdown of labor rate with fringe benefits and insurance upon request.
        (ii) Additionally, provide insurance certificates and internal accounting documentation to support cost of insurance if requested.
    c. Travel and subsistence as required by the Labor Code or Master Labor Agreements and only when the new

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work exceeds the original Contract Time.

2. Cost of the Material: Cost of all material and equipment furnished and incorporated into the work including:
   a. Direct cost of material or equipment.
   b. Incidental or accessory material consumed during the installation.
   c. Taxes.
   d. Cost of delivery or transportation of the material or equipment.
   e. All rebates, refunds and credits for returns or surplus material shall accrue to the Owner.
   f. Material invoices shall be submitted with each change order request.
   g. Only materials used in the performance of the work will be paid. All excess and surplus materials shall be returned for credit to the Owner.
3. Cost of Rental Equipment: The cost of all rental equipment necessary for the installation of the work, including:
   a. The actual rental cost paid to the Rental Agency.
   b. Cost of fuel to operate the equipment during the execution of the work only.
   c. Cost of transportation set up and take down of rental equipment only if the rental equipment requires specialized handling or set up, or is delivered by the rental company.
   d. Only equipment in good working condition and suitable for the intended purpose shall be used. Rental time will not be allowed for down time due to breakdown or non-use.
   e. Rental invoices shall be submitted for each item.
   f. Heavy equipment owned by the Contractor which would normally be rented, can be charged to the Owner at comparable rental rates substantiated by an actual rental agency cost bid and shall comply with all the requirements of this Section 7.2.3.3.
   g. The cost of the operator of the rental equipment shall be included in the cost of the labor and the employee shall be paid the prevailing per diem wage per hour for labor performed on the site.
4. Supplemental Expenses:
   a. Any taxes not specifically identified above that is directly attributable to the cost of the work.
   b. Additional permit fees, inspection costs or additional governmental agency charges.
5. Costs Included in Overhead and Profit: The following are not considered a cost of the Work but are considered to be overhead costs and are included in the Contractor's fee (see section below):
   a. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnership and sole proprietorships), managers, superintendents, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditor, timekeepers, clerks, and other personnel employed by the Contractor whether at the site or in Contractor's principal or a branch office for general administration of the work.
   b. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.
   c. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the work and charges against Contractor for delinquent payments.
   d. Cost of premiums for all bonds and for all insurance whether or not Contractor is required by the Contract Documents to purchase and maintain the same. Cost shall not exceed 2% of the total cost of the work.
   e. Cost due to the negligence of Contractor, any subcontractor, or anyone directly or indirectly employed by any of them for whose acts any of them may be liable, including but not limited to the correction of defective work, disposal of materials or equipment wrongly supplied and making good any damage to property.
   f. Office supplies and equipment consumed in the field office or home office.
   g. Cost of utility usage, including telephone and fax service, consumed during the installation of the work.
   h. The use, depreciation, maintenance, rental and replacement of all hand tools (less than $250.00 capital cost per item).
   i. Contractor owned vehicles, fuel, insurance, and maintenance.
   j. Cost of change order preparation and negotiation, estimating, scheduling, supervision, drafting, and clerical or secretarial services.
   k. Cost of time and material documentation procedures.
   l. Other overhead and general expense costs of any kind and the costs of any item not specifically and expressly included herein.

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6. Contractor's Fee:
   a. Self-Performed Work: The Contractor's fee allowed to Contractor for overhead and profit on self-performed work shall be determined by the following percentages of the various portions for the cost of the work:
      (i) Labor 15%
      (ii) Materials 15%
      (iii) Equipment Rental 15%
      (iv) Other items and expenditures 15%
      (v) Contractor's fee shall only be allowed on the net increase in the Contract Sum.
   b. Subcontracted Work: For all allowable expenses defined as cost of the work incurred by subcontractors, the Contractor fee shall be 5% and no more than 2% for all bonds, insurance, builders risk, etc. on the net increase of the subcontracted portion of the cost of the work.
      (i) In no case shall total combined mark-up on subcontracted and sub-subcontracted work exceed 27%.
7. Subcontractor Cost of the Work:
   a. All work performed by the subcontractor in the performance of the additional work shall be subject to all requirements stated above and imposed on the General Contractor and shall comply with all the same recording and documentation requirements.
   b. The subcontractor's fee allowed to subcontractor for overhead and profit shall be determined by the following percentages of the various portions for the cost of the work:
      (i) Labor 15%
      (ii) Materials 15%
      (iii) Equipment Rental 15%
      (iv) Other items and expenditures 15%
      (v) Subcontractor's fee shall only be allowed on the net increase in the cost of the work.
   c. For all allowable expenses defined as cost of the work incurred by sub-subcontractors, the subcontractor fee shall be 5% on the net increase of the subcontracted portion of the cost of the work.
      (i) In no case shall combined mark-up on subcontracted and sub-subcontracted work exceed 20%.
8. Extended Overhead: The following items are "Extended Overhead" and may be considered as costs when Contract Time is extended due to additional work or due to a Class 1 cause defined in Article 51, and solely to the extent directly attributable to extension of time. In all other instances, the following items shall be considered included in overhead:
   a. Field offices, sheds, phones, sanitary facilities, utilities, drinking fountains, cleaning, safety programs, and other construction facilities and temporary controls not specifically required for additional work;
   b. Additional costs of field supervision.

J. Changes Resulting in a Reduction of the Contract Sum: If the net value of a change results in a reduction of the Contract Sum from the Contractor or subcontractor, the credit given shall be the net cost of the work without overhead or profit.

K. IT IS EXPRESSLY UNDERSTOOD THAT THE VALUE OF SUCH EXTRA WORK OR CHANGES EXPRESSLY INCLUDES ANY AND ALL OF CONTRACTOR'S COSTS AND EXPENSES, BOTH DIRECT AND INDIRECT, RESULTING FROM DELAYS OR ADDITIONAL TIME REQUIRED ON THE PROJECT, OR RESULTING FROM ACCELERATED WORK TO AVOID DELAYS TO THE PROJECT.

L. If CONTRACTOR should claim that any instruction, request, drawing, specification, action, condition, omission, default, or other situation constitutes a change, extra work, or otherwise obligates OWNER to pay additional compensation to CONTRACTOR or to grant an extension of time, or constitutes a waiver of any provision in the Contract Documents, CONTRACTOR shall notify OWNER in writing of such claim within five calendar days from the date CONTRACTOR has actual or constructive notice of the factual basis supporting the claim. The notice shall state the factual basis for the claim and cite in detail the Contract Documents (including plans and specifications) upon which the claim is based. CONTRACTOR's failure to notify OWNER within the five-day period shall be deemed a waiver and relinquishment of such a claim. If the notice is given within the specified time, the procedure for its consideration shall be as stated in these General Conditions. In the event of failure to agree, the matter shall be treated as a claim following the claims procedures in the Contract Documents.

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M. Costs which shall not be paid in Change Orders under the Contract Documents include but are not limited to interest costs of any type, claim preparation or filing costs, costs in preparing or reviewing proposed change orders or proposals, CQR's, ASI's, etc., lost revenue, lost profit, lost income or earnings, rescheduling costs, costs of idled equipment, lost earnings or interest on unpaid retainage, claims consulting costs, costs of corporate officers or staff visiting the site, fluctuation of foreign currency conversion or exchange rate costs, or loss of other business.

N. Notwithstanding any other provision in the Contract Documents, the adjustment in the contract price, if any, and the adjustment in the contract time, if any, set out in a change order shall constitute the entire compensation and/or adjustment in the contract time due CONTRACTOR arising out of the change in the work covered by the change order, including any extensions of time, unless otherwise expressly stated in the change order. The amount of any compensation due CONTRACTOR shall be calculated pursuant to this Article. The compensation shall not include any additional charges not set forth in this Article and shall not include delay damages due to processing a change order or refusal to sign a change order, or any indirect, consequential, or incidental costs, including any project management costs, extended home office and field office overhead, administrative costs, or profit except as such matters may be authorized under this Article.

O. In furtherance of the intent to settle all change orders fully and finally at the issuance date of the change order, the following shall be expressly incorporated in writing and deemed incorporated in all change orders:

THE COMPENSATION (TIME AND COST) SET FORTH IN THIS CHANGE ORDER COMPRISES THE TOTAL COMPENSATION DUE CONTRACTOR FOR THE CHANGE DEFINED IN THE CHANGE ORDER, INCLUDING IMPACT ON UNCHANGED WORK. ACCEPTANCE OF THIS CHANGE ORDER CONSTITUTES A FULL AND COMPLETE ACCORD AND SATISFACTION OF ANY AND ALL CLAIMS BY CONTRACTOR ARISING OUT OF OR RELATING TO THE CHANGE ORDER, INCLUDING BUT NOT LIMITED TO CLAIMS FOR CONTRACT BALANCE AND RETENTION, TIME, EXTENDED FIELD OR HOME OFFICE, OR OTHER OVERHEAD, ALL ACCELERATION, IMPACT, DISRUPTION AND DELAY DAMAGES, ANY AND ALL OTHER DIRECT AND/OR INDIRECT COSTS, CLAIMS BY SUBCONTRACTORS AND SUPPLIERS, AND ANY AND ALL OTHER CLAIMS AGAINST OWNER FOR TIME OR MONEY, FROM ANY SOURCE AND UNDER ANY LEGAL THEORY WHATSOEVER, AS TO THE SUBJECT OF THIS CHANGE ORDER. NO SIGNATURE UNDER PROTEST OR ACCOMPANIED BY RESERVATION OF RIGHTS OR PROTEST LANGUAGE, OR ANY OTHER ATTEMPTS TO AVOID SUCH WAIVER SHALL BE OF ANY FORCE OR EFFECT WHATSOEVER. NO ADDITIONS OR DELETIONS TO THIS CHANGE ORDER SHALL BE ALLOWED, EXCEPT WITH WRITTEN PERMISSION OF OWNER.

P. Within 10 days of the notice to proceed, CONTRACTOR shall submit a detailed list of the field office overhead cost components which are time related and which represent costs incurred as a direct result of time extensions. No allowance for overhead costs and no profit allowance will be allowed on the extended daily field overhead cost component of the change Order. The deviation of an extended home office overhead rate and its application to contract time extensions shall not be allowed.

Q. The CONTRACTOR shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the OWNER may direct, but the CONTRACTOR shall not be required to employ persons or entities to whom the CONTRACTOR has reasonable objection.

R. Unless otherwise provided in the Contract Documents, allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes less applicable trade discounts, Contractor’s costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts. Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The Change Order shall reflect the difference between the actual costs and the allowances.

ARTICLE 28 – CORRECTION OF WORK BEFORE FINAL PAYMENT

A. CONTRACTOR shall promptly remove from the premises all work identified by OWNER as failing to conform to the Contract Documents, whether incorporated or not. CONTRACTOR shall promptly replace and repair its own work to comply with the Contract Documents, without additional expense to OWNER, and shall bear the expense of making good all work of other contractors destroyed or damaged by that removal or replacement, including compensation for the Architect’s

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additional services.

B. If CONTRACTOR does not remove work within a reasonable time following written notification, OWNER may remove and store the material at CONTRACTOR'S expense. If CONTRACTOR does not pay the expenses of removal within 10 days, OWNER may sell the materials at auction or private sale upon 10 days' written notice, and shall account for any net proceeds after deducting all costs and expenses that should have been borne by CONTRACTOR.

ARTICLE 29 – DEDUCTIONS FOR UNCORRECTED WORK

A. If CONTRACTOR defaults or neglects to carry out the Work in accordance with the Contract Documents, or fails to perform any provision of the Contract Documents, after 10 days' written notice to CONTRACTOR, OWNER may make good such deficiencies without prejudice to any other remedy it may have.

B. OWNER shall reduce the total contract price by the cost of making good such deficiencies.

C. If OWNER deems it inexpedient to correct work not performed in compliance with the Contract Documents, an equitable deduction from the contract price shall be made.

ARTICLE 30 – CLEANING UP

A. CONTRACTOR shall at all times keep the work site free from debris such as waste, rubbish, and excess materials and equipment caused by this Work. CONTRACTOR shall not leave debris under, in, or about the work site, but shall promptly remove all items.

B. Upon completion of the Work, CONTRACTOR shall clean the interior and exterior of each building, including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal projections, and any areas where debris has collected. CONTRACTOR shall clean and polish all glass, plumbing fixtures, and finish hardware and similar finish surfaces and equipment, and remove temporary fencing, barricades, planking, sanitary facilities, and similar temporary facilities from the site.

C. If CONTRACTOR fails to clean up at the completion of the Work, OWNER may do so and the cost for such cleanup shall be charged back to CONTRACTOR and may be deducted from future progress or final payments.

D. CONTRACTOR shall not include cleaning as an additional line item for change order payments. Cleaning is included in the overhead expenses included in the CONTRACTOR's and/or Subcontractor's overhead and profit percentage.

ARTICLE 31 – ACCESS TO WORK

OWNER and its representatives shall at all times have access to the Work wherever it is in preparation or progress. CONTRACTOR shall provide safe and proper facilities for access so OWNER's representatives may perform their functions under the Contract Documents.

ARTICLE 32 – GUARANTEE

A. CONTRACTOR warrants that the Work, including any equipment furnished by CONTRACTOR, shall be:

1. Free from defects in workmanship and material;
2. Free from defects in any design performed by CONTRACTOR;
3. New, and conform and perform to the requirements stated in the Specifications, and where detail requirements are not so stated, shall conform to applicable industry standards; and
4. Suitable for the use stated in the Specifications.

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B. The warranty period for discovery of defective work shall commence on the date stamped on the Notice of Completion to verify recording with the County, and shall continue for the period set forth in the Specifications or for one year if not so specified. If during the warranty period the Work is not available for use due to defective work, such time of unavailability shall not be counted as part of the warranty period. The warranty period for corrected defective work shall continue for a duration equivalent to the original warranty period.

C. OWNER shall give CONTRACTOR prompt written notice after discovery of any defective work. CONTRACTOR shall correct any such defective work, as well as any damage to any other part of the Work resulting from such defective work, and provide repair, replacement, or reimbursement, at its sole expense, in a manner approved by OWNER and with due diligence and dispatch as required to make the Work ready for use by OWNER, ordinary wear and tear, unusual abuse, or neglect excepted. Such corrections shall include but not be limited to any necessary adjustments, modifications, changes of design (unless of OWNER's design), removal, repair, replacement, or reinstallation, and shall include all necessary parts, materials, tools, equipment, transportation charges, and labor as may be necessary, and cost of removal. Replacement shall be performed at a time and in such a manner so as to minimize the disruption to OWNER's use of the Work.

D. In the event CONTRACTOR or Surety fails to commence and pursue with diligence any replacements or repairs within one week after being notified in writing, OWNER is authorized to proceed to have any defects repaired at the expense of CONTRACTOR and Surety, and CONTRACTOR and Surety agree to pay the costs and charges immediately on demand.

E. If defective work creates a dangerous condition, in the opinion of OWNER, or requires immediate correction or attention to prevent further loss to OWNER or to prevent interruption or operations of OWNER, OWNER shall attempt to give the notice required by this Article. If CONTRACTOR or Surety cannot be contacted or neither complies with OWNER's request for correction within a reasonable time, as determined by OWNER, without regard to the provisions of this Article, OWNER may proceed to make the correction or provide the attention, and the costs of correction or attention shall be charged against CONTRACTOR. Any action by OWNER shall not relieve CONTRACTOR of the guarantees provided in this Article or elsewhere in the Contract Documents.

F. This article does not in any way limit the guarantee on any items for which a longer guarantee is specified, or any items for which a manufacturer gives a guarantee for a longer period. CONTRACTOR shall furnish OWNER with all appropriate guarantee or warranty certificates upon completion of the Project.

G. All guarantees required under this Article shall be considered to be in writing on the guarantee provided by CONTRACTOR, and CONTRACTOR shall use the form included in the Contract Documents unless otherwise agreed by OWNER.

H. OWNER may collect its reasonable costs and attorneys' fees in any action to enforce this Article.

ARTICLE 33 – SURVEYS

OWNER shall furnish all surveys describing the physical characteristics, legal limitations, and utility locations for the site of the Project and a legal description of the site. Surveys to determine locations of construction, grading, and site work shall be provided by CONTRACTOR.

ARTICLE 34 – SOILS INVESTIGATION REPORT

A. When a soils investigation report has been obtained from test holes at the site, that report is available for CONTRACTOR's use in preparing its bid and work under the Contract Documents. Any information obtained from the report or any information given on drawings as to subsurface soil conditions or as to elevations of existing grades or elevations of underlying rock, is approximate only, is not guaranteed, and is not part of the Contract Documents. CONTRACTOR is required to make a visual examination of the site and must make whatever tests it deems appropriate to determine the actual underground condition of the soil.

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B. CONTRACTOR agrees that it will make no claim against OWNER for damages in the event that during progress of the Work, CONTRACTOR encounters subsurface or latent conditions at the site materially different from those shown on drawings or indicated in Specifications or soils reports, or for unknown conditions of an unusual nature which differ materially from those ordinarily encountered in work of the type provided for in the Plans and Specifications.

C. If during the course of work under the Contract Documents CONTRACTOR encounters subsurface or latent conditions which differ materially from those indicated in the soils investigation report, or drawings, or Specifications, CONTRACTOR shall notify OWNER of same within five working days of discovery of the condition.

WARNING: OWNER does not warrant the soils at the project site. A soils investigation report is provided for CONTRACTOR'S information only. CONTRACTOR represents it has conducted an independent investigation of the project site and the soil conditions of the site. CONTRACTOR is solely responsible to ascertain site conditions for the purposes of determining construction means and methods before commencing construction.

ARTICLE 35 – PERMITS AND LICENSES

A. All necessary permits and licenses shall be secured and paid for by CONTRACTOR unless otherwise provided in the Contract Documents.

B. All permits, licenses, and certificates shall be delivered to the Architect before demand is made for the certificate of final payment.

C. CONTRACTOR shall, and shall require subcontractors to, maintain appropriate contractor's licenses in effect as required by law throughout the entire Project.

D. Easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by OWNER unless otherwise specified.

E. Permits and charges for installation and inspection of utility services by serving utilities shall be secured and paid for by OWNER.

ARTICLE 36 – CUTTING AND PATCHING

A. CONTRACTOR shall do all cutting, fitting, or patching of the Work as required to make its several component parts come together properly, and fit it to receive or be received by any work of other contractors indicated on, or reasonable implied by, the drawings and Specifications, and shall follow all directions given by the Architect.

B. Any cost caused by defective or ill-timed work shall be borne by CONTRACTOR.

C. CONTRACTOR shall not endanger any work by cutting, excavating, or otherwise altering work, and shall not cut or alter work of any other contractor except with the written consent of the Architect.

D. CONTRACTOR shall be solely responsible for protecting existing work on adjacent properties and shall obtain all required permits for shoring and excavations near property lines.

E. When modifying existing work or installing new work adjacent to existing work, CONTRACTOR shall match the finishes, textures, and colors of the original work as closely as conditions of site and materials will allow, refinishing existing work as required, at no additional cost to OWNER.

F. CONTRACTOR is aware that this Project may be split into several phases. If the Project is split into phases, CONTRACTOR has made allowances for any delays or damages which may arise from coordination with contractors for other phases. If any delays should arise from a contractor working on a different phase, CONTRACTOR's sole remedy for

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damages, including delay damages, shall be against the contractor who caused such damage and not against OWNER. CONTRACTOR shall provide access to contractors for other phases as necessary to prevent delays and damages to contractors working on other phases of construction.

ARTICLE 37 – TESTS AND INSPECTIONS

A. If the Contract Documents, OWNER's instructions, laws, ordinances, or any public authority requires any work to be specially tested or approved, CONTRACTOR shall give notice, in accordance with requirements of such authority, of CONTRACTOR's readiness for observation or inspection. Such notice shall be given at least two working days prior to being tested or covered up. If inspection is by authority other than OWNER, CONTRACTOR shall inform OWNER's Inspector of the date fixed for such inspection. Required certificates of inspection shall be secured by CONTRACTOR. Observations by OWNER shall be promptly made, and where practicable, at the source of supply. If any work is covered up without approval or consent of OWNER, if required by OWNER, it must be uncovered for examination and satisfactorily reconstructed at CONTRACTOR's expense, in compliance with the Contract Documents. The cost of inspection or testing of any materials which are not in compliance with the Contract Documents shall be borne by CONTRACTOR. If the inspection or testing was paid for by OWNER, it will be charged back to and paid by CONTRACTOR. Other costs for tests and inspection of materials shall be paid by OWNER, unless otherwise provided in the Contract Documents.

B. Where the inspection and testing will be conducted by an independent laboratory or agency, the materials or samples of materials to be tested shall be selected by the laboratory or agency, or OWNER's representative, and not by CONTRACTOR.

C. CONTRACTOR shall notify OWNER in writing a sufficient time in advance of the manufacture of any materials to be supplied to CONTRACTOR under the Contract Documents, which materials must be tested according to the terms of the Contract Documents, in order that OWNER may arrange for testing at the source of supply. Materials shipped by CONTRACTOR from the source of supply without having satisfactorily passed testing and inspection, or prior to receipt of notice from OWNER that testing and inspection will not be required, shall not be incorporated into the Work without the prior approval of OWNER and subsequent testing and inspection.

D. Reexamination or retesting of questioned work may be ordered by OWNER, and if so ordered any work must be uncovered by CONTRACTOR. If the work is determined to be in accordance with the Contract Documents, OWNER shall bear the costs of reexamination or retesting and replacement. If the work is not in accordance with the Contract Documents, CONTRACTOR shall bear the costs.

ARTICLE 38 – EXCAVATION DEEPER THAN FOUR FEET

A. CONTRACTOR shall provide adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life and limb in trenches and open excavation. Any such method used shall conform to applicable safety standards.

B. If the Contract Documents involve the excavation of any trench or trenches more than four feet in depth, in advance of excavation CONTRACTOR shall submit to OWNER, or to whomever OWNER designates, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of any trench or trenches. If the plan varies from the Shoring System Standards established by the Construction Safety Orders of the Division of Industrial Safety of the Department of Industrial Relations, the plan shall be prepared by a registered civil or structural engineer employed by CONTRACTOR, and all costs of the plan shall be included in the contract price. In no case shall the plan be less effective than that required by the Construction Safety Orders. No excavation of any trench or trenches shall be commenced until the plan has been accepted by CAL-OSHA and a CAL-OSHA permit for the plan is delivered to OWNER.

C. If the Contract Documents involve digging trenches or excavations that extend deeper than four feet below the surface, the following shall apply:

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1. Before the following conditions are disturbed, CONTRACTOR shall promptly notify OWNER in writing of any:
   a. Material that CONTRACTOR believes may be hazardous waste, as defined in Health and Safety Code Section 25117, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
   b. Subsurface or latent physical conditions at the site different from those indicated.
   c. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.
2. OWNER shall promptly investigate the conditions, and if it finds that the conditions do so materially differ, or do involve hazardous waste, and cause a decrease or increase in CONTRACTOR's cost or the time required for performance of any part of the Work, shall issue a change order under the procedures described in the Contract Documents.
3. In the event of a dispute between OWNER and CONTRACTOR concerning whether or not the conditions materially differ or involve hazardous waste, or cause a decrease or increase in CONTRACTOR's cost or time required for performance of any part of the Work, CONTRACTOR shall not be excused from any scheduled completion date provided for by the Contract Documents, but shall proceed with all the work to be performed. CONTRACTOR shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

ARTICLE 39 – WORKERS

A. At all times, CONTRACTOR shall enforce strict discipline and good order among its employees, shall not employ any unfit person or anyone not skilled in the work assigned, and shall require the same of all subcontractors of all tiers. It shall be the responsibility of CONTRACTOR to ensure subcontractor compliance with this Article.

B. Any person in the employ of CONTRACTOR or subcontractors whom OWNER may deem to be incompetent, unfit, troublesome, or otherwise undesirable, shall be excluded from the work site and shall not again be employed on it except with written consent of OWNER.

ARTICLE 40 – FINGERPRINTING WORKERS

A. CONTRACTOR shall comply with the applicable requirements of Education Code sections 45125.1 and 45125.2 with respect to fingerprinting CONTRACTOR's employees and pupil safety. CONTRACTOR shall also ensure that each of its subcontractors on the Project complies with the applicable requirements of sections 45125.1 and 45125.2. To this end, CONTRACTOR must complete and submit to OWNER the certification form included in the Contract Documents for itself and its subcontractors prior to commencing work on the Project. At CONTRACTOR's expense, CONTRACTOR shall comply with any directive from OWNER specifying measures to ensure the safety of pupils, including but not limited to one or more measures described in Education Code section 45125.2(a).

B. Should CONTRACTOR or any subcontractor feel its employees will have limited or less contact with OWNER's pupils, application shall be made to OWNER for a determination on that question. The determination by OWNER shall be final. In the event OWNER makes a determination of limited or less contact with pupils, CONTRACTOR shall comply with any directive by OWNER to ensure the safety of pupils, at CONTRACTOR's expense.

C. Use of Education Code section 45125.2(a)(1), (2), or (3) for compliance with these fingerprinting requirements is subject to prior OWNER approval. The determination by OWNER on the application of any of these sections shall be final.

D. In no event shall any employee of CONTRACTOR or its subcontractors come into contact with OWNER's pupils before the certification is completed and approved by OWNER.

ARTICLE 41 – WAGE RATES AND PAYROLL RECORDS

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A. Pursuant to the provisions of Article 2 (commencing at Section 1770), Chapter 1, Part 7, Division 2, of the California Labor Code, OWNER has ascertained the general prevailing rate of per diem wages for each craft, classification, or type of worker needed to execute the work of the Project in the locality in which this public work is to be performed. The general prevailing rates of per diem wages are available at OWNER's office. CONTRACTOR is responsible to pay those rates determined to be applicable by the Director of the Department of Industrial Relations and OWNER shall not be responsible for any damages arising from the error.

B. When permitted by law, holiday and overtime work shall be paid at a rate of at least one and one-half times the specified rate of per diem wages, unless otherwise specified.

C. CONTRACTOR shall pay and shall cause to be paid to each worker engaged in work on the Project not less than the general prevailing rate of per diem wages, regardless of any contractual relationship which may exist between CONTRACTOR or any Subcontractor and such workers.

D. Pursuant to Labor Code Section 1775, CONTRACTOR shall forfeit and OWNER shall withhold from payments to CONTRACTOR not more than $200 for each calendar day any worker is paid less than the established prevailing wage rates for the work or craft in which the worker is employed by CONTRACTOR on the Project. The difference between the established prevailing wage rates and the amount paid to each worker for each whole or partial calendar day for which each worker was paid less than the established prevailing wage rates shall be paid to each worker by CONTRACTOR.

E. Any worker employed to perform work on the Project which is not covered by any classification available in OWNER's office, shall be paid not less than the minimum rate of wages specified for the classification which most nearly corresponds with work to be performed by him, and that minimum wage rate shall be retroactive to the time of initial employment of the person in the classification.

F. Pursuant to Labor Code Section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel, subsistence, apprenticeship, and similar purposes.

G. At appropriate conspicuous points on the site of the Project, CONTRACTOR shall post job site notices prescribed by the Department of Industrial Relations, including but not limited to, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned.

H. CONTRACTOR shall submit a breakdown of all labor costs for this Project by trade. This breakdown shall be for all labor that CONTRACTOR or any subcontractor supplies to the Project. This information shall be provided to OWNER before the first payment request after the Notice to Proceed has been issued. Failure to provide the labor cost breakdown will result in delay in processing the payment request until the complete cost breakdown is provided by CONTRACTOR and received and approved by OWNER. No other labor expenses will be considered unless approved in writing by OWNER.

I. Pursuant to the provisions of Labor Code Section 1776, CONTRACTOR shall keep and shall cause each Subcontractor performing any portion of the work on the Project to keep an accurate payroll record, showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by CONTRACTOR in connection with the Work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating that (1) the information contained in the payroll record is true and correct, and (2) the employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by the employer's employees on the Project.

J. The payroll records required under this article shall be certified and shall be available for inspection at all reasonable hours at CONTRACTOR's principal office on the following basis:

1. A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request;
2. A certified copy of all required payroll records shall be made available for inspection or furnished upon request

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to a representative of OWNER, the Division of Labor Standards Enforcement, and/or the Division of Apprenticeship Standards of the Department of Industrial Relations;

3. A certified copy of all payroll records required under this article shall be made available for inspection or copies made upon request by the public; provided, however, that a request by the public shall be made through either OWNER, the Division of Apprenticeship Standards, or the Department of Industrial Relations. If the requested payroll records have not been provided pursuant to Paragraph 2 above, prior to being provided the records, the requesting party shall reimburse the costs of preparation by CONTRACTOR, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at CONTRACTOR's principal office.
4. The form of certification shall be as follows:

   I, (printed name), the undersigned, am the (position in business) with the authority to act for and on behalf of _____ (name of business and/or CONTRACTOR), and certify under penalty of perjury that the records or copies submitted and consisting of (description, number of pages) are the originals or true, full, and correct copies of the originals which depict the payroll record(s) of the actual disbursements by way of cash, check, or whatever form to the individual or individuals named.

   Dated: Signature:

K. CONTRACTOR shall file a certified copy of the required payroll records with the entity requesting the records within 10 days after receipt of a written request. In the event CONTRACTOR fails to comply within the 10-day period, as a penalty to OWNER CONTRACTOR shall forfeit $100 for each calendar day, or portion of each calendar day, for each worker until strict compliance is effectuated. Upon request by the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

L. Payroll records made available for inspection as copies and furnished upon request to the public by OWNER, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address, and social security number. Payroll records furnished to agencies that are included in the Joint Enforcement Strike Force on the Underground Economy and other law enforcement agencies investigating violations of law shall be unredacted. The name and address of CONTRACTOR shall not be marked or obliterated in either case.

M. CONTRACTOR shall inform OWNER of the location of the payroll records, including the street address, city, and county, and within five working days shall provide a written notice of a change of location and address.

N. It shall be CONTRACTOR's responsibility to ensure compliance with the provisions of this article and the provisions of Labor Code Section 1776.

O. This project is subject to prevailing wage monitoring and enforcement by the Department of Industrial Relations. CONTRACTOR and all subcontractors shall be subject to the requirements of Subchapter 4.5 of Chapter 8 of Title 8 of the California Code of Regulations. Contractor and all subcontractors must furnish electronic certified payroll records to the DIR on the frequency specified in the Notice Calling for Bids using the DIR's eCPR system. To enroll in the eCPR system or obtain additional information and assistance, CONTRACTOR is directed to the DIR website at www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html. CONTRACTOR shall comply with all requirements of the Labor Code and attendant regulations pertaining to prevailing wage monitoring and compliance as indicated in the Contract Documents, and/or as required by the DIR. CONTRACTOR shall permit OWNER, the DIR or their designee to interview CONTRACTOR's employees concerning compliance with prevailing wage, apprenticeship, and related matters, whether or not during work hours, and shall require each subcontractor to provide OWNER, the DIR or their designee with such access to its employees.

ARTICLE 42 – APPRENTICES

A. CONTRACTOR acknowledges and agrees that the Contract Documents are governed by the provisions of Labor Code

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Section 1777.5 where applicable. It shall be CONTRACTOR's responsibility to ensure compliance with this article and with Labor Code Section 1777.5 for all apprenticing occupations.

B. Apprentices of any crafts or trades may be employed, and when required by Labor Code Section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.

C. Every apprentice shall be paid the prevailing rate of per diem wages for apprentices in the trade to which the apprentice is registered, and shall be employed only at the work of the craft or trade to which the apprentice is registered.

D. Only apprentices as defined in Labor Code Section 3077 who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards, and who are parties to written apprentice agreements under Chapter 4 (commencing at Section 3070), Division 3, of the Labor Code, are eligible to be employed on public works. The employment and training of each apprentice shall be in accordance with either (1) the apprenticeship standards and apprentice agreements under which the apprentice is in training, or (2) the rules and regulations of the California Apprenticeship Council.

E. Pursuant to Labor Code Section 1777.5, CONTRACTOR and any subcontractors employing workers in any apprenticeship craft or trade performing any work under the Contract Documents shall employ apprentices in at least the ratio set forth in Labor Code Section 1777.5, and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the project site for a certificate approving CONTRACTOR or Subcontractor under the applicable apprenticeship standards for the employment and training of apprentices in the area of industry affected.

F. Prior to commencing work on the Project, CONTRACTOR shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the project site. The information submitted shall include an estimate of journeyman hours to be performed on the Project, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to OWNER if requested. Within 60 days after concluding work on the Project, CONTRACTOR and all Subcontractors shall submit a verified statement of the journeyman and apprentice hours performed on the Project to the awarding body, if requested, and to the apprenticeship program. This information shall be public.

G. If in performing any of the Work, CONTRACTOR employs journeymen or apprentices in any apprenticeable craft or trade, CONTRACTOR shall contribute to the California Apprenticeship Council the same amount that the Director of Industrial Relations determines is the prevailing amount of apprenticeship training contributions in the area of the Project, subject to any credits permitted by law.

H. If CONTRACTOR or any Subcontractor is determined by the Chief of the Division of Apprenticeship Standards to have knowingly violated Labor Code Section 1777.5, it shall:

1. Forfeit as a civil penalty an amount not exceeding $100 ($300 for knowing subsequent violations) for each full calendar day of noncompliance. Notwithstanding Labor Code Section 1727, upon receipt of a determination that a civil penalty has been imposed by the Labor Commissioner, OWNER shall withhold the amount of the civil penalty from contract progress payments then due or to become due.
2. In lieu of the monetary penalty, for a first-time violation and with the concurrence of a specified apprenticeship program, the Labor Commissioner may order CONTRACTOR or any Subcontractor to provide apprentice employment equivalent to the work hours that would have been provided for apprentices during the period of noncompliance.
3. In the event CONTRACTOR or any Subcontractor is determined by the Labor Commissioner to have knowingly committed a serious violation of any provision of Section 1777.5, the Labor Commissioner may also deny CONTRACTOR or any Subcontractor, and their responsible officers, the right to bid on or be awarded or perform work as a subcontractor on any public works contract for a period of up to one year for the first violation and up to three years for a subsequent violation.

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CONTRACTOR or any Subcontractor (or responsible officer) shall have the right to obtain a review of the determination imposing a debarment or civil penalty as provided by law.

I. CONTRACTOR and all Subcontractors shall comply with Labor Code Section 1777.6, which forbids certain discriminatory practices in the employment of apprentices.

J. CONTRACTOR shall become fully acquainted with the law regarding apprentices prior to commencement of the work. Special attention is directed to Labor Code Sections 1777.5, 1777.6, and 1777.7, and Title 8, California Code of Regulations, Section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California.

ARTICLE 43 – HOURS OF WORK

A. CONTRACTOR shall furnish, and shall require all Subcontractors to furnish, sufficient forces to ensure the Work is prosecuted in accordance with the detailed project schedule without payment of overtime wage rates whenever possible.

B. As provided in Article 3 (commencing at Section 1810), Chapter 1, Part 7, Division 2 of the Labor Code, eight hours of labor shall constitute a legal day of work. The time of service of any worker employed at any time by CONTRACTOR, or by any subcontractor, upon the Work or upon any part of the work contemplated by the Contract Documents is limited and restricted to eight hours per day and 40 hours during any one week. Upon completion of all hours worked in excess of eight hours per day, work shall be permitted upon this Project at not less than one and one-half times the basic rate of pay.

C. CONTRACTOR shall keep, and shall cause all subcontractors to keep, an accurate record showing the name and actual hours worked each calendar day and each calendar week by each worker employed in connection with the Work or any part of the Work contemplated by the Contract Documents. The record shall be kept open at all reasonable hours to the inspection of OWNER and to the Division of Labor Standards Enforcement, Department of Industrial Relations.

D. Saturdays, Sundays, holidays (including all OWNER designated holidays), and any day with work hours before 7:30 a.m. and/or after 4 p.m. shall be considered overtime for OWNER's representatives, consultants, and inspectors, and shall be compensated as such by CONTRACTOR per OWNER's submitted invoice. Such cost shall be billed to CONTRACTOR and deducted from subsequent progress payments or the final payment.

E. As a penalty, CONTRACTOR shall pay $25 to the Department of Industrial Relations or OWNER for each worker employed by CONTRACTOR or by any subcontractor in the performance of the Contract Documents for each calendar day during which the worker is required or permitted to work more than eight hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Article 3 (commencing at Section 1810), Chapter 1, Part 7, Division 2 of the Labor Code.

F. Any work performed before or after regular working hours or on Saturdays, Sundays, or holidays (including all OWNER designated holidays) shall be performed without additional expense to OWNER. Should inspection or testing services be necessary on a Saturday, Sunday, or holiday (including all OWNER designated holidays), CONTRACTOR shall pay all additional expenses incurred. Such cost shall be billed to CONTRACTOR and deducted from the next payment.

G. CONTRACTOR shall anticipate work that would occur outside the normal work hours of 7:30 a.m. to 4 p.m. Such activities would include but are not limited to early morning concrete pours (because of hot weather), early or late material deliveries, required off-site inspections, or any other activity that would require the Project Inspector or OWNER personnel to work longer than an eight-hour day.

H. The Project Inspector cannot be asked to leave the Project after eight hours of work so CONTRACTOR would not have to pay overtime. If the extended work day is a result of CONTRACTOR'S work, the Project Inspector will perform its DSA assigned work as necessary to assure the Project is kept on schedule and CONTRACTOR is responsible to pay all costs associated with fulfilling these DSA assignments, including the Project Inspector's overtime. These costs shall be billed to

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CONTRACTOR and deducted from subsequent progress payments or the final payment.

ARTICLE 44 – NONDISCRIMINATION

In the performance of the terms of the Contract Documents, CONTRACTOR agrees that it will not engage in or permit any Subcontractor it may employ to engage in unlawful discrimination in employment of persons because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons.

ARTICLE 45 – COST BREAKDOWN AND PERIODICAL ESTIMATES

A. On forms approved by OWNER, CONTRACTOR shall furnish the following:

1. Within 10 calendar days of award of contract, a detailed estimate giving a complete breakdown of contract price for each Project or site, which shall include all Subcontractor/supplier agreements showing dollar amounts of these agreements to justify the schedule of values; and
2. A periodical itemized estimate of work done for the purpose of making partial payments; and
3. A schedule of estimated monthly payments due CONTRACTOR within 10 days of request by OWNER.

B. Values employed in making up any of these schedules are subject to the Architect's written approval and will be used only for determining basis of partial payments and will not be considered as fixing a basis for additions to or deductions from contract price unless OWNER in its sole discretion so elects.

ARTICLE 46 – PAYMENTS

A. Unless otherwise specified in writing, each month within 30 days after receipt by OWNER of the monthly progress schedule and the certification of application for payment by the Architect, OWNER shall pay to CONTRACTOR a sum equal to 95 percent of the value of work performed and materials delivered subject to or under the control of OWNER and unused up to the last day of the previous month, less aggregate previous payments. In its sole discretion, OWNER may also deduct from these payments any amounts deemed due from CONTRACTOR.

B. Monthly payments shall be made only on the basis of monthly estimates which shall be prepared by CONTRACTOR on a form approved by OWNER and filed before the fifth day of the month during which payment is to be made.

C. Before consideration of a request for payment, a certificate in writing shall be obtained from the Architect stating that the work for which the payment is demanded has been performed in accordance with the terms of the Contract Documents and that the amount stated in the certificate is due under the terms of the Contract Documents. The certificate shall be attached to and made a part of the payment request filed with OWNER. The certificate of the Architect shall not be conclusive upon OWNER, but advisory only.

D. If within three days after written demand the Architect fails to deliver such certificate, CONTRACTOR may file its payment request with OWNER without the certificate, but the request shall be accompanied by a statement that demand was made for the certificate and was refused. OWNER will then either allow the payment request as presented or shall by an order entered on the minutes of OWNER state the reasons for refusing to make payment.

E. Work completed as estimated shall be an estimate only and no inaccuracy or error in an estimate shall operate to release CONTRACTOR or Surety from any damages arising from such work or from enforcing each and every provision of the Contract Documents, and OWNER shall have the right to subsequently correct any error made in any estimate for payment.

F. CONTRACTOR SHALL NOT BE ENTITLED TO HAVE ANY PAYMENT REQUESTS PROCESSED OR ANY PAYMENT FOR WORK PERFORMED SO LONG AS CONTRACTOR HAS FAILED TO COMPLY WITH ANY LAWFUL OR PROPER DIRECTION CONCERNING THE WHOLE OR ANY PORTION OF THE WORK GIVEN BY OWNER OR THE ARCHITECT.

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G. OWNER has discretion to require from CONTRACTOR any of the following information with the application for payment: (1) certified payroll covering the period of the prior application for payment, (2) unconditional waivers and releases from all Subcontractors/suppliers for which payment was requested under the prior application for payment, (3) receipts or bills of sale for any items. In addition, upon submittal of the first payment request, a complete per diem wage rate breakdown for all trades must be submitted in order for the payment request to be processed.

H. PAYMENT BY OWNER OF ANY PAYMENT REQUEST IS NOT AN INDICATION THAT OWNER HAS INSPECTED, APPROVED, OR ACCEPTED ANY PART OF THE WORK, NOR SHALL PAYMENT CONSTITUTE A WAIVER IN ANY RESPECT OF ANY OWNER RIGHTS.

I. The final payment of 5 percent of the value of the work done under the Contract Documents, if unencumbered, may be made 35 days after the Notice of Completion is recorded by OWNER. ACCEPTANCE WILL BE MADE ONLY BY ACTION OF THE GOVERNING BOARD OR OTHER GOVERNING BODY OF OWNER IN ACCORDANCE WITH THE PROVISIONS ON “COMPLETION.”

J. Unless otherwise agreed in writing, on or before making request for final payment of the undisputed amount due under the Contract Documents, CONTRACTOR shall submit to OWNER the following in writing:

1. Information on CONTRACTOR’s results in attaining compliance with the OWNER’s three percent participation goal for Disabled Veterans Business Enterprises;
2. A summary of all claims for compensation under or arising out of the Contract Documents, stating whether the claims are settled or unsettled and the amounts of the claims, and further specifying the date(s) upon which any required protest and/or notice was given to OWNER;
3. A written release of all claims against OWNER arising by virtue of the Project, the Work, and the Contract Documents. Payment of undisputed amounts is contingent upon receipt of this waiver.

ARTICLE 47 – PAYMENTS BY CONTRACTOR

CONTRACTOR shall pay:

A. All transportation and utility services not later than the 20th day of the calendar month following the month in which the services are rendered;

B. Ninety-five percent of the cost of all materials, tools, and other expendable equipment, not later than the 20th day of the calendar month following the month in which the materials, tools, and equipment are delivered to the project site, and the balance of the cost not later than the 30th day following completion of that part of the work in which the materials, tools, and equipment are incorporated or used; and

C. To each of its subcontractors the respective amounts allowed CONTRACTOR on account of work performed by each subcontractor not later than the fifth day following each payment to CONTRACTOR.

ARTICLE 48 – PAYMENTS WITHHELD

A. In addition to any amount(s) which OWNER may retain under the article entitled "PAYMENTS," OWNER may withhold sufficient amount(s) of any payment(s) otherwise due to CONTRACTOR, as in its judgment may be necessary to cover the following:

1. Payments which may be past due and payable for claims against CONTRACTOR or any Subcontractors at any level for labor or materials furnished in the performance of work under the Contract Documents.
2. Defective work not remedied.
3. Failure of CONTRACTOR to make proper payments to its subcontractor(s) or material suppliers for materials or

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labor.

4. Completion of work if there exists a reasonable doubt that the work can be completed for the balance then unpaid.
5. Damage to another contractor.
6. All costs and expenses associated with OWNER having to acquire alternate educational facilities if CONTRACTOR fails to complete the Project within the period of time required by the Contract Documents.
7. Project schedule not up-to-date with the current payment request.
8. Overtime charges due consultants, Project Inspectors, the Architect, and OWNER or others as a result of extra services that were provided at CONTRACTOR's request or as a result of actions of CONTRACTOR or those employed by CONTRACTOR, including subcontractors, material suppliers, or others will be withheld from current payment requests.
9. CONTRACTOR agrees that OWNER may withhold 150 percent of the estimated cost of any additional testing or retesting required as a result of the fault or negligence of CONTRACTOR, or Subcontractors, vendors, or suppliers, until such time as OWNER receives confirmation that payment for such additional testing or retesting has been made.
10. Failure to maintain a current record set of drawings. The drawings shall be updated to the date when the payment request is submitted.
11. Failure to submit daily reports.
12. Failure to submit items required to accompany payment requests at initial and final completion.
13. Failure to submit and keep current any construction schedule required by the Contract Documents.
14. Failure to compensate the Architect for substitution review within the required time period.
15. Failure to compensate OWNER for overtime charges for OWNER representatives and employees incurred as a result of services provided during the current payment period.
16. Failure to compensate OWNER and/or the Architect for the cost of review time to evaluate CONTRACTOR'S proposed solutions to effect repair of work not in accordance with Contract Documents.
17. Failure to submit per diem wage rates for all trades pursuant to appropriate provisions of the General Conditions.
18. Penalties for violation of labor laws.
19. Cost of site clean-up.
20. Required payments to indemnify, hold harmless, or defend OWNER.
21. Compensation for unpaid extra services for the Architect caused by CONTRACTOR.
22. Compensation for unpaid extra services for the Project Inspector, including but not limited to reinspection required due to CONTRACTOR's failed tests, installation of unapproved or defective materials, or CONTRACTOR's requests for inspection and failure to attend the requested inspection.
23. Any liquidated damages, forfeiture of fees, or other damages assessed against CONTRACTOR by reason of failure to complete the Project on time.

B. OWNER may apply the withheld amount(s) to the payment of any claims or obligations at its discretion. In so doing, OWNER shall be deemed the agent of CONTRACTOR and any payment made by OWNER shall be considered to be a payment made under the Contract Documents by OWNER to CONTRACTOR, and OWNER shall not be liable to CONTRACTOR for the payments made in good faith. The payments may be made without prior judicial determination of the claim or obligations. OWNER shall submit to CONTRACTOR an accounting of the funds disbursed on behalf of CONTRACTOR.

ARTICLE 49 – SUBSTITUTION OF SECURITIES

A. Pursuant to the provisions of Public Contract Code section 22300, CONTRACTOR may substitute certain securities for any funds withheld by OWNER to ensure its performance under the Contract Documents. At the request and expense of CONTRACTOR, securities equivalent to any amount withheld shall be deposited, at the discretion of OWNER, with either a state or federally chartered bank as the escrow agent, who shall then pay any funds otherwise subject to retention to CONTRACTOR. Upon satisfactory completion of the Project, the securities shall be returned to CONTRACTOR.

B. Securities eligible for investment under this article shall include those listed in Government Code section 16430, bank

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and savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by CONTRACTOR and OWNER.

C. CONTRACTOR shall be the beneficial OWNER of any securities substituted for funds withheld and shall receive any interest.

D. All expenses relating to the substitution of securities under Public Contract Code section 22300 and this article, including but not limited to OWNER's overhead and administrative expenses and expenses of escrow agent, shall be CONTRACTOR's responsibility.

E. Should the value of the substituted security at any time fall below the amount for which it was substituted, or any other amount which OWNER determines to withhold, CONTRACTOR shall immediately and at CONTRACTOR'S expense deposit additional security qualifying under Public Contract Code section 22300 until the total security deposited is no less than equivalent to the amount subject to withholding under the Contract Documents.

F. In the alternative, under Public Contract Code section 22300, at its own expense, CONTRACTOR may request OWNER to make payment of earned retention funds directly to the escrow agent.

G. All escrow agreements shall be in conformance with the Escrow Agreement for Security Deposits in Lieu of Retention set forth in Public Contract Code section 22300, and shall be in the form of agreement provided by OWNER unless otherwise agreed in advance.

ARTICLE 50 – PROGRESS SCHEDULE

A. Immediately after being awarded the Construction Agreement, CONTRACTOR shall prepare an estimated progress schedule and submit it to OWNER for review. The schedule shall indicate the beginning and completion dates of all phases of construction.

B. The schedule shall be updated at reasonably required intervals throughout the Project, unless specifically required to be updated at more frequent intervals.

C. Additional scheduling requirements may be contained in the attached Supplemental General Conditions.

D. While OWNER does not discourage efforts by CONTRACTOR to accomplish an early completion of the Project, CONTRACTOR is directed to utilize and schedule the entire construction period set forth in the Construction Agreement. Any portion of the construction period not so scheduled shall be considered "float" and used the same as other float under the Contract Documents.

E. In connection with the DSA Construction Oversight Process, which includes the use of inspection cards and review of changes to the DSA-approved construction documents, the Contractor must (a) include specific tasks in its baseline schedule to take into account these procedures since they are critical path issues; and (b) include a reasonable amount of float in the baseline schedule to accommodate the additional time required by these DSA procedures.

ARTICLE 51 – EXTENSION OF TIME

A. If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Article 56, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

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B. Claims relating to time shall be made in accordance with applicable provisions of Articles 55 and 56.

C. The basis for an extension of time exists if the Contractor is delayed in performing the Work, but solely to the extent that delays are unforeseeable, unavoidable, and beyond the control and without fault or negligence, in whole or in part, of the Contractor, subcontractors, sub-subcontractors, and suppliers at every tier, and said delays directly impact the Contractor's ability to achieve Completion in accordance with the Contract Time requirements, and said delays cannot be made up by reasonable efforts otherwise, and said delays stem from the following causes:

1. Class 1 Cause: An act or failure to act on the part of the Owner or Architect or an employee of either, or of a separate contractor employed by the Owner, or concealed or unknown conditions.
2. Class 2 Cause: Abnormal weather, fire, acts of God, riots, civil commotion, acts of War, unavoidable casualties, epidemics, quarantine restrictions, labor disputes, unusual delay in deliveries, freight embargoes, governmental action in connection with the Project including required submittal reviews by the Division of the State Architect, interference in the Project by neighbors, discovery or occurrence of any environmental matter or hazardous material, or the discovery of archaeological artifacts at the site.

D. If the basis exists for an extension of time under Article 51.C, the Owner may either:

1. in the case of a Class 1 cause:
    a. Include any Extended Overhead in the Change Order extending the Contract Time; or
    b. Assign any Extended Overhead (defined in Article 27.H.8) to an allowance pending a final determination of actual impact at the conclusion of the Work, whichever occurs sooner;
2. Accept the reasonable and appropriate time extension as determined by the Architect to cover such delays, and in the case of a Class 2 cause, there will be no corresponding adjustment in Contract Sum, and the sole recourse of the Contractor will be entitlement to time extension as provided by the Architect regardless of actual sources or cause of delay;
3. Order the Contractor to accelerate construction activity by working overtime and by adding extra forces in order to overcome such delays, and adjusting the Contract Sum in accordance with Article 27 to compensate the Contractor for such directed acceleration; however, direct costs used in determining such compensation shall be limited to properly substantiated and documented premium or overtime costs; or
4. Employ a combination of the above remedies.

E. Neither the Owner nor the Architect will be obligated or liable to the Contractor for, and the Contractor hereby expressly waives claims against the Owner and Architect on account of damages, costs, expenses, or related impacts which the Contractor, subcontractors, sub-subcontractors, suppliers, or other persons may incur as a result of a Class 2 cause enumerated in Article 51.C; the Contractor's sole remedy and full compensation in such event shall be extension of Contract Time in accordance with provisions of the Contract Documents. The Contractor likewise waives claims of damages, costs, or expenses due to a delay resulting from a Class 1 cause except and solely to the extent of costs allowed under Articles 27.H.1, 27.H.2, 27.H.3, 27.H.4, 27.H.5, 27.H.6 and 27.H.

F. In accordance with the provisions of Government Code Section 4215, the Contractor shall not be assessed liquidated damages where delay is caused by failure of the public agency or owner of the utility to provide for the removal or relocation of utility facilities, but only if such utilities are not identified by the Owner in the Contract Documents.

ARTICLE 52 – OCCUPANCY

OWNER reserves the right to occupy buildings and/or portions of the site at any time before completion, and occupancy shall not constitute final acceptance of any part of the Work covered by the Contract Documents, nor shall such occupancy extend the date specified for completion of the Work. Beneficial occupancy of building(s) does not commence any warranty period or entitle CONTRACTOR to any additional compensation due to such occupancy, or affect in any way or amount CONTRACTOR’s obligation to pay liquidated damages for failure to complete the Project on time.

ARTICLE 53 – CONTRACT CLOSEOUT

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A. Utility Connections: The building and/or buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

B. Record Drawings:

1. CONTRACTOR shall keep the following:
   a. One complete set of blue line prints of all drawings which form a part of the Project in good order and available on the job site. They shall be used only for the purpose intended. Drawings shall be kept up-to-date as the Work progresses and shall be available at all times for inspection.
   b. One set of annotated Specifications reflecting any and all changes to the original documents from change orders, substitutions, or any other deviations from the original specifications.
2. The intent of this procedure is to obtain an exact "as built" record of the work upon completion of the Project. The following information shall be carefully and correctly drawn on the prints and all items shall be accurately located and dimensioned from finished surfaces of building walls on all record drawings:
   a. Any work not installed as indicated on drawings.
   b. The exact locations and elevations of all covered utilities, including valves, cleanouts, etc.
3. CONTRACTOR shall certify to OWNER the accuracy of the record drawings and annotated Specifications and is liable and responsible for inaccuracies in as-built and/or record drawings and the annotated Specifications, even if they do not become evident until a future date.
4. Upon completion of the Work and correction of all punch list items and as a condition precedent to approval of final payment, CONTRACTOR shall obtain the Architect’s review of the marked up record set of prints and annotated Specifications and employ an appropriately trained individual to transfer the as-built information to a form of electronic media, acceptable to the Architect and OWNER, containing the original Drawings. CONTRACTOR shall provide the electronic as-built drawings to the Architect. When as-built information has been transferred to the acceptable electronic medium and the record drawings have been reviewed by the Architect, CONTRACTOR shall pay for a duplicate set of contract drawings to be used for CONTRACTOR’s record drawings. Those final corrected record drawings shall also be saved on electronic media, in a format designated by OWNER, and shall be given to OWNER. Reproduction expenses for the drawings shall be paid for by CONTRACTOR out of the allowance and any difference returned to OWNER.
5. CONTRACTOR shall deliver to the Architect three complete sets of operating manuals, repair parts lists, and service instructions for all electrical and mechanical equipment, together with equipment warranties.

C. Maintenance Manuals: At least 30 days prior to final inspection, three copies of complete operational and maintenance manuals shall be submitted for review. All installation, operating, and maintenance information and drawings shall be bound in 8½ x 11" binders, indexed with tabs, and include tables of contents. Each manual shall also contain a list of subcontractors, with their addresses and the names of persons to contact in case of emergencies. Identifying labels shall provide names of manufacturers, their addresses, ratings, and capacities of equipment and machinery.

D. Inspection Requirements:

1. Before calling for final inspection, CONTRACTOR shall determine that the following work has been performed:
   a. General construction has been completed;
   b. Mechanical and electrical work complete, fixtures in place, connected and ready for tryout and test;
   c. Electrical circuits scheduled in panels and disconnect switches labeled;
   d. Painting and special finishes complete;
   e. Doors complete with hardware, cleaned of protective film, in good working order without sticking or binding;
   f. Tops and bottoms of doors stained/painted and sealed;
   g. Floors waxed and polished as specified;
   h. Broken glass replaced and glass cleaned;
   i. Grounds cleared of CONTRACTOR'S equipment, raked clean of debris, and trash removed from site;
   j. Work cleaned, free of stains, scratches, and other foreign matter, replacement of damaged and broken

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material;
k. Finished and decorative work shall have marks, dirt, and superfluous labels removed;
l. All flatwork shall have all stains removed including but not limited to oil, gas, rust, paint, etc.

2. Final inspection will be made by the Architect and specified OWNER personnel upon written notification from CONTRACTOR that work has been completed. CONTRACTOR must prearrange a final inspection with OWNER and Project Inspector. There should be a minimum of seven days' notice to OWNER and Project Inspector before the final inspection is scheduled. CONTRACTOR shall receive a list (punch list) of items found unacceptable and shall promptly correct them. Upon written notification from CONTRACTOR that all items have been corrected the Architect and Project Inspector or OWNER will reinspect for final acceptance of the Project. Failure of CONTRACTOR to complete punch list items will necessitate further reinspection by the Architect and Project Inspector or OWNER. Cost of reinspection will be deducted from the amounts owing to CONTRACTOR.
3. Deliver keys (labeled) to OWNER's representative. Master keys shall be accounted for in writing.
4. Furnish a letter to OWNER stating that a responsible representative of OWNER (give name and position) has been instructed in working characteristics of mechanical and electrical equipment.

E. Guarantee: Upon completion of final inspection, CONTRACTOR is to submit the guarantee to OWNER as specified in the Contract Documents.

F. Manufacturer Warranties: CONTRACTOR shall deliver 10 days prior to final inspection, original manufacturer warranties for all materials, equipment and/or supplies purchased and/or installed under the Contract Documents.

G. Equipment Training: Prior to final inspection, CONTRACTOR is responsible for providing the appropriate training for a minimum of two personnel of OWNER for each trade for the newly installed mechanical and electrical equipment required under the Contract Documents.

H. In addition, the Notice of Completion will not be filed until either such amounts are paid or the items are provided. However, OWNER may also elect to file the Notice of Completion and pay retention after deducting such amounts. If CONTRACTOR disputes the amounts or OWNER's right to withhold these amounts, OWNER may withhold up to 150 percent of the disputed amount.

ARTICLE 54 – COMPLETION

A. OWNER shall accept the completion of the Project when all of the following conditions have been met:

1. The entire Work or Project (including all phases if a project is phased) including minor corrective items is completed to the satisfaction of OWNER;
2. The final DSA report has been filed with the State;
3. By action of its governing board or other governing body, OWNER has accepted the Project to be complete.
4. The Notice of Completion for the entire Project has been filed and recorded.

B. A final walk-through of the Project to determine completion of the Work and to record the Notice of Completion shall occur only upon a valid claim by CONTRACTOR that the Project is complete, including minor corrective items.

1. CONTRACTOR's Project Manager and Superintendent(s) shall attend the final walk-through. A representative(s) of OWNER shall also attend.
2. Should OWNER incur any costs by reason of an erroneous or premature claim of completion by CONTRACTOR that results in a premature walk-through, OWNER may withhold such costs from any money due or to become due to CONTRACTOR.
3. Any incomplete or corrective items shall be identified in the final walk-through of the Project.
4. Incomplete and corrective items identified in any walk-through shall be completed before CONTRACTOR calls for a subsequent walk-through, which shall be treated as and bear the same consequences as the initial call for a walk-through.

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C. Alternative Process: OWNER shall have the option in its sole discretion to accept completion of the Work and have the Notice of Completion recorded when the entire Work is completed to OWNER's satisfaction, except for minor corrective items as distinguished from incomplete items.

1. Should OWNER elect to accept the Work as complete prior to completion of the entire Work or Project, it shall be on the following conditions:
   a. The entire Work or Project (including all phases if a project is phased), excluding minor corrective items, is complete to OWNER's satisfaction;
   b. The final DSA report shall be filed with the State as soon as appropriate;
   c. By action of its governing board or other governing body, OWNER has accepted the Project to be complete.
   d. The Notice of Completion for the entire project has been filed and recorded.
2. Should OWNER elect to accept the Work as complete prior to completion of the entire Work or Project, there shall be a final walk-through of the Project, as follows:
   a. Final walk-through shall be made upon a valid claim by CONTRACTOR that the Project is complete, excepting only minor corrective items;
   b. CONTRACTOR's Project Manager and Superintendent(s) shall attend the final walk-through. OWNER may be represented by anyone designated by OWNER's Representative, including but not limited to the Project Inspector, management, and/or representatives from Maintenance and Operations;
   c. Should OWNER incur any costs by reason of an erroneous or premature claim of completion by CONTRACTOR that results in a premature walk-through, OWNER may withhold such costs from any money due or to become due to CONTRACTOR.
   d. All remaining work, including minor incomplete or corrective items, shall be identified in the final walk-through of the Project;
   e. Incomplete and corrective items identified in any walk-through shall be completed before CONTRACTOR calls for a subsequent walk-through, which shall be treated as, and bear the same consequences as, the initial call for a walk-through.
3. Should OWNER elect to accept the Work as complete prior to completion of the entire Work or Project, and if CONTRACTOR fails to complete the minor corrective items prior to the expiration of a 35-day period immediately following recording of the Notice of Completion, OWNER shall withhold from the final payment an amount equal to 150 percent of the estimated cost, as determined by OWNER, of each incomplete or corrective item until such time as the item is completed.
4. If at the end of an additional 30-day period, there are items remaining to be corrected, OWNER may elect to:
   a. Permit additional time for completion;
   b. Complete the Work at the expense of CONTRACTOR, deducting the cost of work from any amounts being withheld.
5. CONTRACTOR shall have no claim or offset as against OWNER arising or in any way connected with an election by OWNER not to accept completion of the Work until the entire Work or Project, including minor corrective items, has been completed to OWNER's satisfaction. The time taken by CONTRACTOR to complete the Work or Project, including minor corrective items, shall be a basis for assessment of liquidated damages as provided in the Contract Documents, and is not affected by any decision by OWNER to occupy all or any portion of the Work prior to completion.

ARTICLE 55 – POTENTIAL CHANGE AND CHANGE ORDER REQUESTS

A. Potential Changes: If the CONTRACTOR identifies the potential for extra work, delay in the critical path schedule, or the need for additional money or time, or if the CONTRACTOR requests additional money or time, or if the CONTRACTOR believes that the OWNER has failed to pay amounts due or otherwise breached the Contract, or otherwise believes that it is entitled to a modification of the Contract terms and conditions, then CONTRACTOR shall follow the procedures in this Article 55 and Articles 27 and 51, otherwise the CONTRACTOR shall have waived its rights to pursue those issues and any later attempts to recover money or obtain a modification shall be barred. The CONTRACTOR specifically acknowledges the OWNER'S and public's interest in, and need to know of, potential changes and disputes as early as possible so the OWNER

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can investigate, mitigate and resolve adverse cost and time impacts, if any. It is the CONTRACTOR'S obligation to know and comply with the requirements of this Article 55 and Articles 27 and 51, and OWNER has no obligation to notify CONTRACTOR of any failure to comply with those requirements.

B. Notice of Potential Changes: CONTRACTOR shall submit a written Notice of Potential Change for extra work, critical path delay, or additional money or time. CONTRACTOR shall submit written Notices of Potential Change to OWNER within five (5) days of CONTRACTOR becoming aware of the issues creating the potential for change, unless the issues are, or may soon be, adversely affecting the costs or critical path of the Work, in which case the CONTRACTOR must submit the written notice without delay so the OWNER may take immediate action to mitigate cost and schedule impacts of the change, if any. The written notice shall explain the nature of the potential change so the OWNER may take action to mitigate costs and schedule impacts, if necessary.

1. When submitting a written Notice of Potential Change based on extra work, CONTRACTOR shall not perform the extra work until directed in writing to do so by OWNER. When submitting a written Notice of Potential Change for an issue of critical path delay, CONTRACTOR shall proactively mitigate the effects of the alleged delay as much as reasonably possible so as to minimize any impact to the schedule, until otherwise directed by OWNER. If CONTRACTOR intends to rely on OWNER'S acts or omissions in support of a request for a time extension, then CONTRACTOR must also provide the notice set forth in Article 55.B.
2. Failure to timely submit a written Notice of Potential Change shall constitute a complete waiver by CONTRACTOR of any right to later submit a change order request or pursue a Claim on that issue, or to later pursue any additional money or time extensions in any manner related to that issue, regardless of the merits, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies. CONTRACTOR acknowledges that these written notices are of critical importance to the OWNER'S Project management and the mitigation of Project costs and delays.

C. Change Order Requests:

1. If, after submitting a written Notice of Potential Change pursuant to Articles 55.A and 55.B, the CONTRACTOR continues to believes that it is entitled to additional money or time (including, but not limited to, grant of a time extension; payment of money or damages arising from work done by or on behalf of the CONTRACTOR, payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to; or an amount the payment of which is disputed by the OWNER) based on an issue, then the CONTRACTOR shall submit a Change Order Request to the OWNER within twenty (20) days of (1) becoming aware of the issues creating a potential change, or (2) the date by which it should have become aware of the issues creating a potential change. A rejection at any time or a lack of a rejection by OWNER of a Notice of Potential Change does not affect the timeline for submitting a Change Order Request.
2. Failure to timely submit a Change Order Request related to an issue, or failure to comply with any of the Change Order Request requirements in the Contract shall constitute a complete waiver by CONTRACTOR of any right to later submit a Change Order Request or Claim on that issue, or to later pursue any additional money (including time extensions) in any manner related to that issue, regardless of the merits, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.
3. The Change Order Request shall state the grounds for the additional money or time requested and the amount of money or time requested and include all information supporting the Change Order Request. When a time extension is requested, the CONTRACTOR shall submit a time impact analysis with the Change Order Request showing the influence of the change or delay on the Contract Completion Date.
4. The OWNER may accept the entire Change Order Request, accept part of the Change Order Request and reject the remainder, reject the entire Change Order Request, or request additional information. If the OWNER does not respond within thirty (30) days by accepting the entire Change Order Request, accepting part of the Change Order Request and rejecting the remainder, or requesting additional information, then the entire Change Order Request shall be deemed rejected as of the thirtieth (30th) day. If the OWNER requests additional information, then the CONTRACTOR shall submit the information within fifteen (15) days of the date of the request and the OWNER shall have fifteen (15) days after the receipt of the additional information to accept or reject (in whole or in part) the Change Order Request. If the OWNER fails to respond within fifteen (15) days after the submission of additional information, then the entire Change Order Request shall be deemed rejected as of the fifteenth (15th)

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day.

ARTICLE 56 – CLAIMS AND DISPUTES

A. A "Claim" is a separate demand by the CONTRACTOR for (1) a time extension, (2) payment of money or damages arising from work done by, or on behalf of, the CONTRACTOR, payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (3) an amount the payment of which is disputed by the OWNER. A claim includes any claim within the scope of Public Contract Code Section 20104 et seq. Resubmittal in any manner of a Change Order Request which was previously rejected under Article 55.B constitutes a Claim, whether the Change Order Request was rejected in whole or in part, and whether the Change Order Request was rejected expressly or deemed rejected by OWNER inaction. A Claim includes any dispute the CONTRACTOR may have with the OWNER, including one which does not require a Notice of Potential Change or Change Order Request under Articles 55.A and 55.B, and includes an alleged breach of contract by the OWNER. A Claim under this Article 55.C shall also constitute a claim for purposes of the California False Claims Act. If there is a conflict between a Claims provision in Division 1 of the Specifications and this Article 56, then this Article 56 shall take precedence.

1. The Notice of Potential Change and Change Order Request procedures above are less formal procedures which precede the more formal Claim. A Notice of Potential Change does not constitute a Claim. A Change Order Request does not constitute a Claim; except that if insufficient time remains before the Claim deadline set forth in Article 56.C for CONTRACTOR to submit a Change Order Request and for OWNER to process and reject the Change Order Request under Article 55.B, then either (1) CONTRACTOR may submit a Change Order Request which OWNER shall treat as a Claim, but only if the Change Order Request complies with all requirements in this Article 55.C and Articles 27 and 51 for Change Order Request's and Claims, or (2) a Change Order Request is not required so long as a Claim complying with this Article 56 is timely submitted.
2. A Claim does not include vouchers, invoices, payment applications, or other routine or authorized forms of requests for payments on the Contract; however, those documents remain "claims" for purposes of the California False Claims Act. A Claim does not include a Government Code Claim. ("Government Code Claim" means a claim under Government Code Sections 900 et seq. and 910 et seq.)
3. A Claim may not include any costs incurred in preparation of the Claim or in preparation of any underlying Change Order Request, including, but not limited to, costs of delay analysis.

B. Continuing Contract Performance: Pending final resolution of a Claim, except as otherwise agreed in writing or as provided under Article 63, the CONTRACTOR shall proceed diligently with performance of the Contract as directed by OWNER, and the OWNER shall continue to make any undisputed payments in accordance with the Contract.

C. Time for Submitting Claim: The CONTRACTOR shall submit a Claim to the OWNER on or before the date of the Final Payment. The OWNER'S rejection, or lack of rejection, of a Change Order Request at any time does not affect the deadline for filing a Claim.

1. In addition, before the date of the Final Payment based on 100% completion of the work, CONTRACTOR shall submit to OWNER, in writing, a summary of all Claims for money or time extensions under or arising out of this Contract which were timely filed and which were fully compliant with the Contract's requirements for Claims. The OWNER'S making of the Final Payment shall constitute a complete waiver of all Claims against the OWNER under or arising out of this Contract, except those identified in the above summary, as the CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies. This Claim summary requirement shall not extend the time for submitting a Claim.
2. Failure to timely submit a Claim, failure to include a Claim in the Claim summary, or failure to comply with any of the Claim requirements in the Contract, including, but not limited to, this Article 56, will act as a complete waiver of CONTRACTOR'S rights to (1) recover money or time on the issues for which a Claim was required, (2) submit a Government Code Claim for the money or time (see Articles 56.H and 56.I), and (3) initiate any action, proceeding or litigation for the money or time, regardless of the merits, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies. The OWNER does not have an obligation to reject the Claim for a failure to comply with any of the Claim requirements in the Contract, including the lack of certification, and any failure by the OWNER to reject, or any delay in rejecting, a Claim on that basis does not waive the OWNER'S right

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to reject the Claim on that basis at a later time. In no event may the CONTRACTOR reserve its rights to assert a Claim for a time extension or additional money beyond the time set forth in Article 56.C unless the OWNER agrees in writing to allow the reservation.

D. Content of Claims: All claims shall be in writing. All claims for additional cost or time shall be stated and itemized in the Claim at the time submitted. The responsibility to substantiate Claims shall rest with the CONTRACTOR. Claims shall be submitted with adequate supporting documentation which includes, but is not limited to the following:

1. A statement of the reasons for the asserted entitlement, identifying primary, secondary, and indirect claim issues;
2. Identification of contract clauses under which the claim is being presented;
3. A written analysis as to (1) why the claimed cost was incurred, (2) why CONTRACTOR could not mitigate its costs, (3) why the claimed cost is the responsibility of the OWNER, and (4) why the claimed cost is a reasonable amount.
4. Cost impact statement for each claim issue with an itemized breakdown for any adjustment sought, including copies of the original subcontractor invoices or cost statements, certified payroll, invoices for material, invoices for equipment rental, and other data required to substantiate costs claimed.
5. Time impact statement for each claim issue with a written time impact analysis illustrating the influence of each change on the current scheduled completion date in accordance with other scheduling requirements of these Contract Documents.
6. The CONTRACTOR shall certify, at the time of submission of a claim, as follows:

   I, [name of declarant], declare that [Contractor company name] has contracted with [public entity name] for the [name of project] Project. ([Contractor company name]) authorized me to prepare the attached Claim for money and/or time extension) for [public entity name] regarding this Project (dated _____, 20__, entitled _____, and requesting $_____ and/or ___ additional days), and I prepared the attached Claim. I am the most knowledgeable person at [contractor company name] regarding this Claim.

   The attached Claim complies with all laws applicable to submission of a Claim, including, but not limited to, California Penal Code section 72, Government Code sections 12650 et seq. (False Claims Act), and Business and Professions Code sections 17200 et seq. (Unfair Business Practices Act). I am aware that submission or certification of false claims, or other claims that violate law or the Contract, may lead to fines, imprisonment, and/or other serious legal consequences for myself or [contractor company name].

   The attached Claim does not breach the Contract between [contractor company name] and [public entity name] for this Project, is not a false claim, does not violate any applicable law, satisfies all provisions of the Contract applicable to submission of the Claim, only contains truthful and accurate supporting data, and only requests additional costs /or additional time that accurately reflects the adjustments to cost and time for which I believe that [public entity name] is responsible under its Contract with [contractor company name].

   While preparing this declaration and Claim I consulted with others (including attorneys, consultants, or others who work for [Contractor company name]) when necessary to ensure that the statements were true and correct.

   The Contactor understands and agrees that any Claim submitted without this certification does not meet the terms of the Contract Documents; that the Owner, or Owner's representatives, may reject the Claim on that basis; and that unless the Contractor properly and timely files the Claim with the certification, the Contractor cannot further pursue the Claim in any forum and all rights to additional money or time for the issues covered by the Claim are waived due to a condition precedent not having been satisfied.

   I declare under the penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed _____, 20__, at _____, California.

   By: _____
   (Name, title and signature of Declarant)

7. Claims submitted without adequate supporting documentation or certification will be rejected.
8. Submission of a Claim, properly certified, with all required supporting documentation, and written rejection or denial of all or part of the Claim by the OWNER, is a condition precedent to any action, proceeding, litigation, or

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suit by the CONTRACTOR.

9. The CONTRACTOR'S failure to timely submit a certification will constitute a complete waiver of CONTRACTOR'S rights to (1) recover money or time on the issues for which a Claim was required, (2) submit a Government Code Claim (see Article 56.H.4) for the money or time, and (3) initiate any action, proceeding or litigation for the money or time, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.

E. Claims for Additional Cost: If the CONTRACTOR wishes to make a Claim for an increase in the Contract Sum, written notice as provide herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Article 20.C. In no event will the CONTRACTOR be allowed to reserve its rights to assert a Claim for additional cost at a later time, unless the OWNER expressly agrees in writing to allow the reservation. Any costs, direct or indirect, not asserted shall be waived.

F. Claims for Additional Time: If the CONTRACTOR wishes to make a Claim for an increase in the Contract Time, written notice as provide herein shall be given. The Claim shall include, but not be limited to, all facts supporting the Claim, all documentation of such facts, all information required by the Contract Documents, and a current schedule and delay analysis explaining (1) the nature of the delay, (2) the OWNER'S responsibility for the claimed delay, (3) the claimed delay's impact on the critical path, (4) the claimed delay's impact on completion date (including an analysis of any float still remaining and whether the alleged delay in work exceeds such remaining float), and (5) why CONTRACTOR could not mitigate the delay impacts. In the case of a continuing delay, only one initial Claim is necessary that is based on estimates of when the continuing delay will end, but within thirty (30) days of the end of the continuing delay an updated final Claim must be submitted, which shall also be certified. In no event will the CONTRACTOR be allowed to reserve its rights to assert a Claim for a time extension, unless the OWNER expressly agrees in writing to allow the reservation. Any time extension not asserted shall be waived.

1. Unusually Severe Weather Conditions: If unusually severe weather is the basis for a Claim for additional time, then CONTRACTOR must provide OWNER data and facts showing that the weather conditions were abnormal for the period of time, could not have been reasonably anticipated or mitigated, and had an adverse effect on the critical path of the scheduled construction.
   a. The CONTRACTOR shall reasonably anticipate that normal weather conditions will be encountered. No extension of time will be granted for normal weather conditions. Normal weather conditions shall be defined as the average days per month in which 0.10" or more of precipitation occurs, based upon the weather data from the Western Regional Climate Center, National Weather Service, for Visalia, Porterville, Hanford, Fresno, Madera, California. Average precipitation days per month are as follows:

Month	**Coalinga**	**Delano**	**McFarland**	**Hanford**	**Lemoore**	**Visalia**	**Los Banos**	**Fresno / Sanger**	**Madera**	**Porterville**	**Lemon Cove**	**Lindsay**	**Merced**	**Three Rivers**	**Springville**
January	4	4	4	4	4	5	5	5	5	5	5	5	6	5	6
February	4	4	4	4	4	5	5	5	5	5	5	5	5	6	6
March	3	3	3	4	4	4	4	5	4	5	5	5	5	6	6
April	2	2	2	2	2	2	2	2	3	3	3	3	3	4	5
May	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
June	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

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July	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
October	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
November	2	2	2	2	2	2	3	3	3	2	3	3	3	3	5
December	3	3	3	3	3	4	4	4	4	4	4	4	5	5	6
Total:	**20**	**20**	**20**	**21**	**21**	**24**	**25**	**26**	**26**	**26**	**27**	**27**	**30**	**35**	**40**

2. Final determination of the final impact of adverse weather may be deferred to the conclusion of the Work. Extensions of time may be requested for any month of construction for days lost, which affect the critical path of construction, due to adverse weather in excess of the normal weather conditions, as defined above.

G. "Pass Through" Claims: A Subcontractor or supplier to CONTRACTOR may not submit a request for additional time or cost directly to the OWNER. If a subcontractor or supplier submits a request for additional cost or time to the CONTRACTOR and the CONTRACTOR wishes to pass it through to OWNER, then the CONTRACTOR must comply with all requirements of Articles 55 and 56, including Notices of Potential Change, Change Order Requests, and Claims. The CONTRACTOR must prepare and submit its own analysis of the Subcontractor's request, and the Claim must include a copy of the Subcontractor's request along with any other necessary supporting documentation.

.1 The CONTRACTOR'S analysis of the Subcontractor's request must include CONTRACTOR'S detailed explanation as to why the Subcontractor or supplier's request is the OWNER'S responsibility, including CONTRACTOR'S analysis of (1) why the amount of damages the Subcontractor or supplier requests is justified and appropriate, (2) how CONTRACTOR'S breach of the subcontract caused the Subcontractor or supplier to incur these damages, and (3) how the OWNER'S breach of the Contract caused the CONTRACTOR'S breach of the subcontract.

.2 Any CONTRACTOR Claim that fails to include the above information, or that states that OWNER is responsible for the Subcontractor's request only if that CONTRACTOR is found to owe money to Subcontractor, shall act as a complete waiver of CONTRACTOR'S rights to (1) recover money or time on the issues for which a Claim was required, (2) submit a Government Code Claim (see Article 56.H.4) for the money or time, and (3) initiate any action, proceeding or litigation for the money or time, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.

H. Procedures for Claims Less Than or Equal to $375,000 (Public Contract Code section 20104.2): Claims less than or equal to $375,000 are subject to this Article 56.H, as well as the separate procedures and substantive provisions of Articles 55.A through 56.G.

1. Claims for Less Than $50,000: The OWNER shall respond in writing to any written Claim within 45 days of receipt of the Claim, or may request, in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the claim the OWNER may have against the CONTRACTOR.
   a. If additional information is thereafter required, then it shall be requested and provided pursuant to this subsection, upon mutual agreement of the OWNER and CONTRACTOR.
   b. If OWNER and the CONTRACTOR cannot reach mutual agreement, then the CONTRACTOR'S failure to provide any reasonably-requested information within fifteen (15) days after the request shall act as a complete waiver of the CONTRACTOR'S rights to (1) recover money or time on the issues for which a Claim was required, (2) submit a Government Code Claim (see Article 56.H.4) for the money or time, and (3) initiate any action, proceeding or litigation for such money or time, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.
   c. The OWNER'S written response to the Claim, as further documented, shall be submitted to the CONTRACTOR within 15 days after receipt of the further documentation, or within a period of time no

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greater than that taken by the CONTRACTOR in producing the additional information, whichever is greater.

2. Claims Over $50,000 and Less Than or equal to $375,000: The OWNER shall respond in writing to all written Claims within 60 days of receipt of the Claim, or may request, in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim the OWNER may have against the CONTRACTOR.
    a. If additional information is thereafter required, then it shall be requested and provided pursuant to this subsection, upon mutual agreement of the OWNER and the CONTRACTOR.
    b. If the OWNER and the CONTRACTOR cannot reach mutual agreement, then the CONTRACTOR'S failure to provide any reasonably-requested information within thirty (30) days after the request shall act as a complete waiver of the CONTRACTOR'S rights to (1) recover money or time on the issues for which a Claim was required, (2) submit a Government Code Claim (see Article 56.H.4) for such money or time, and (3) initiate any action, proceeding or litigation for such money or time, as the CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.
    c. The OWNER'S written response to the Claim, as further documented, shall be submitted to the CONTRACTOR within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the CONTRACTOR in producing the additional information or requested documentation, whichever is greater.
3. Meet and Confer: If the CONTRACTOR disputes the OWNER'S written response, or the OWNER fails to respond within the time prescribed, then the CONTRACTOR may so notify the OWNER, in writing, either within 15 days of receipt of the OWNER'S response or within 15 days of the OWNER'S failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the OWNER shall schedule a meet and confer conference for settlement of the dispute, which shall take place within 30 days of the demand. Upon written agreement of the OWNER and the CONTRACTOR, the conference may take place during regularly scheduled Project meetings.
    a. If CONTRACTOR fails to timely notify the OWNER that it wishes to meet and confer pursuant to the previous Section, then CONTRACTOR will have waived all rights to (1) recover money or time on the issues for which a Claim was required, (2) submit a Government Code Claim (see Article 56.H.4) for such cost or time, and (3) initiate any action, proceeding or litigation for such money or time, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.
    b. If a Claim, or any portion of a Claim, over $100,000 remains in dispute after the meet and confer and the CONTRACTOR wishes to pursue it, then the CONTRACTOR must demand non-binding mediation in writing within fifteen (15) days. If the CONTRACTOR fails to timely notify the OWNER in writing that it wishes to mediate pursuant to this Section, then the CONTRACTOR will have waived all right to further pursue the Claim pursuant to Article 56.C. The parties shall reasonably cooperate to schedule and attend a mediation as soon as reasonably possible.
4. Government Code Claim: If the Claim or any portion remains in dispute after the meet and confer conference and the CONTRACTOR wishes to pursue it, then the CONTRACTOR must file a timely and proper Government Code Claim. The filing of a Government Code Claim is specifically required in addition to all contractual procedures described in Articles 55.A through 56.G. The above contractual procedures do not act as a substitute for the Government Code Claim process, and the two sets of procedures shall be sequential with the contractual procedures coming first.
    a. Failure to timely file a Government Code Claim shall act as complete waiver of CONTRACTOR'S rights to (1) recover money or time on the issues for which a Government Code Claim was required, and (2) initiate any action, proceeding or litigation for such money or time, as CONTRACTOR will not have satisfied a condition precedent or exhausted administrative remedies.
    b. The OWNER and the CONTRACTOR shall proceed with the Government Code Claim according to Government Code, Section 900 et seq., and as otherwise permitted by law. For purposes of the applicable Government Code provisions, and as provided in Public Contract Code section 20104.2(e), the running of the time period within which a CONTRACTOR must file a Government Code Claim shall be tolled from the time the CONTRACTOR submits a written Claim under Article 55.C until the time that the Claim is denied, in whole or in part, as a result of the meet and confer process in Article 56.H.3, including any period of time utilized by the meet and confer process.

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I. Procedures for Claims Over $375,000: The CONTRACTOR and OWNER shall proceed with Claims over $375,000 pursuant to Article 56.H, except as follows: (1) Article 56.H.1 shall not be applicable; (2) for Article 56.H.2, OWNER shall respond in writing to all written Claims within 90 days of receipt of the Claim, or may request, in writing, within 45 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim the OWNER may have against the CONTRACTOR; (3) for Article 56.H.2, the OWNER shall respond within 45 days after receipt of the further documentation, or within a period of time no greater than that taken by the CONTRACTOR in producing the additional information or documentation, whichever is greater; and (4) for Article 56.H.3, following the meet and confer conference, if the Claim or any portion of it remains in dispute and CONTRACTOR wishes to pursue it, the CONTRACTOR must demand in writing within fifteen (15) days that the parties mediate (non-binding). If the CONTRACTOR fails to timely notify the OWNER in writing that it wishes to mediate pursuant to this Section, then the CONTRACTOR will have waived all rights to further pursue the Claim pursuant to Article 56.C. The parties shall reasonably cooperate to schedule and attend a mediation as soon as reasonably possible.

J. Claims for Concealed or Unknown Conditions: Trenches or Excavations Less Than Four Feet Below the Surface: If CONTRACTOR encounters conditions at the Site which are subsurface or otherwise concealed physical conditions, which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then the CONTRACTOR shall give notice to the OWNER promptly before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. If CONTRACTOR believes that such conditions differ materially and will cause an increase in the CONTRACTOR'S cost of, time required for, or performance of any part of the Work, then CONTRACTOR must comply with the provisions above for Notice of Potential Change, Change Order Request, and Claims (beginning with Article 55.A).

1. Trenches or Excavations Greater Than Four Feet Below the Surface: Pursuant to Public Contract Code section 7104, when any excavation or trenching extends greater than four feet below the surface:
    a. The CONTRACTOR shall promptly, and before the following conditions are disturbed, notify the OWNER, in writing, of any (1) material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, which is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law; (2) subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids; or (3) unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.
    b. The OWNER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR'S cost of, or the time required for, performance of any part of the Work, then the OWNER shall issue a change order under the procedures described in the Contract.
2. If a dispute arises between the OWNER and the CONTRACTOR as to whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the CONTRACTOR'S cost of, or time required for, performance of any part of the Work, then the CONTRACTOR shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The CONTRACTOR shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

K. Injury or Damage to Person or Property: If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, any of the other party's employees or agents, or others for whose acts such party is legally liable, then written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding ten (10) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. For a Notice of Potential Change, Change Order Request and Claim for additional cost or time related to this injury or damage, CONTRACTOR shall follow this Article 56.

ARTICLE 57 – PERFORMANCE/PAYMENT BOND

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A. Unless otherwise specified in the Contract Documents, CONTRACTOR shall furnish a Performance Bond, and for any contract of $25,000 or more, a Payment Bond, each in an amount equal to 100 percent of the price stated in the Contract Documents. All bonds shall be provided by a corporate surety admitted in California. Personal sureties and unregistered sureties are unacceptable. The Performance Bond shall remain in full force and effect through the guarantee period as specified in the Contract Documents and through such extended period as permissible to cover latent conditions.

B. All surety companies with a minimum rating of "A minus, VIII," ("A minus V" when the price stated in the Contract Documents is less than $500,000) as rated by the current edition of Best's Key Rating Guide, published by A.M. Best Company, Oldwick, New Jersey, 08858, and admitted in California shall be presumed to be satisfactory to OWNER for the issuance of bonds. In the alternative, any admitted surety company which satisfies the requirements set forth in California Code of Civil Procedure Section 995.660 shall be accepted and approved for the issuance of bonds.

ARTICLE 58 – INSURANCE REQUIREMENTS

A. CONTRACTOR shall provide the following insurance coverages, which shall remain in full force and effect during the Project:

1. Workers' Compensation;
2. Comprehensive General Liability;
3. Comprehensive Auto Liability;
4. Asbestos Abatement (on all modernization projects and on any other projects where asbestos-containing products may be affected by construction);
5. Course of Construction/Builder's Risk.

B. All insurance companies must meet the following criteria:

1. California admitted, as confirmed by the California Department of Insurance, or listed in the California Department of Insurance's List of Eligible Surplus Line Insurers ("LESLI list")
2. A minimum rating of "A-,VIII," as rated by the current edition of Best's Key Rating Guide, published by A.M. Best Company, Oldwick, New Jersey, 08858.

C. All CONTRACTOR'S insurance policies shall name OWNER's governing board or other governing body, OWNER's consultants, the Architect, and the Architect's consultants, their officers, agents and employees as additional insureds with regard to damages and defense of claims arising from:

1. Activities performed by or on behalf of the Named Insured;
2. Products and completed operations of Named Insured;
3. Premises owned, leased or used by the Named Insured;
4. The ownership, operation, maintenance, use, loading, or unloading of any auto owned, leased, hired, or borrowed by the Named Insured.

D. Should CONTRACTOR fail to provide insurance as required by the Contract Documents, OWNER may, at OWNER's option, take out and maintain at the expense of CONTRACTOR, insurance in the name of CONTRACTOR, or subcontractor, as OWNER may deem proper. OWNER may deduct the cost of taking out and maintaining such insurance from any sums which are due or to become due to CONTRACTOR under the Contract Documents.

E. Insurance coverage shall not be less than the following:

1. WORKERS' COMPENSATION

    a. In accordance with the provisions of Section 3700 of the California Labor Code, CONTRACTOR and every

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subcontractor shall be required to secure the payment of compensation to its employees.

b. In accordance with the provisions of Section 3700 of the California Labor Code, CONTRACTOR and every subcontractor shall be required to secure the payment of compensation to its employees.

c. CONTRACTOR shall at all times maintain workers' compensation insurance for all of its employees engaged in work under the Contract Documents, on or at the site of the Project. In case any of its work is sublet, CONTRACTOR shall require the subcontractor to similarly provide workers' compensation insurance for all of the subcontractors' employees. Any class of employee or employees not covered by a subcontractor's insurance shall be covered by CONTRACTOR's insurance. In case any class of employees engaged in work under the Contract Documents, on or at the site of the Project, is not protected under the workers' compensation statutes, CONTRACTOR shall provide or shall cause a subcontractor to provide adequate insurance coverage for the protection of such employees not otherwise protected before subcontractor commences work. CONTRACTOR shall file with OWNER certificates of its insurance protecting workers and a 30-day notice shall be provided to OWNER before the cancellation or reduction of any policy of CONTRACTOR or subcontractor. CONTRACTOR shall submit proof of insurance and provide endorsements on the forms provided by OWNER or on forms approved by OWNER.

d. The certificate shall reflect coverage in at least the following amounts:
   (1) State workers' compensation statutory benefits policy—limits of not less than $1,000,000.
   (2) Employer's liability policy—limits of not less than $1,000,000.

2. COMMERCIAL GENERAL LIABILITY

a. CONTRACTOR shall take out and maintain such commercial general liability insurance as shall protect CONTRACTOR and OWNER from all claims for personal injury, including accidental death, to any person (including, as to OWNER, injury or death to CONTRACTOR's or subcontractor's employees), as well as from all claims for property damage arising from operations under the Contract Documents, in amounts set forth in this article.

b. CONTRACTOR shall require its subcontractors, if any, to take out and maintain similar general commercial liability insurance in like amounts.

c. Coverage must be written on an occurrence versus a "claims made" form with policy limits not less than $1,000,000 per occurrence and $2,000,000 aggregate per project on bodily injury and property damage, and include coverage for the following:
   (1) Premises - operations;
   (2) Contractual liability;
   (3) Products;
   (4) Completed operations;
   (5) Broad form property damage including explosion, collapse, and underground coverages;
   (6) Personal injury;

d. In the event of any payment under the Commercial General Liability Policy, the insurer shall be subrogated to the extent of such payment to all the insured's rights of recovery, but the insurer shall have no rights of subrogation against OWNER, OWNER's consultants, the Architect, and the Architect's consultants, their elected or appointed officials, or employees, except as respects the negligence of OWNER, the Architect, and Architect's consultants.

3. COMPREHENSIVE AUTO LIABILITY INSURANCE

Such insurance shall have combined single limits of not less than $1,000,000, bodily injury, property damage, including coverage for owned, non-owned and hired autos.

4. ASBESTOS ABATEMENT

a. Must be occurrence coverage versus "claims made" coverage.

b. $1,000,000 per occurrence with not less than $2,000,000 annual aggregates limits required.

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c. Certificates of insurance must specify “asbestos abatement.”

5. COURSE OF CONSTRUCTION (COC)/BUILDER’S RISK INSURANCE

a. CONTRACTOR shall be required to provide builders risk coverage with limits equal to 100 percent of the insurable value of the Project (including existing construction where occurs), including all items of labor and materials in or adjacent to the structure insured, all materials in place or to be used as part of the permanent construction, including surplus materials, shanties, protective fences, bridges, or temporary structures, miscellaneous materials and supplies incident to the work, and such scaffolding, staging, towers, forms, and equipment as are not owned or rented by CONTRACTOR, the cost of which are included in the cost of the Work. Such insurance shall be maintained for the life of the Contract.
b. If required by OWNER, CONTRACTOR shall maintain a Builder's Risk Completed Value Form providing all risk coverage, naming CONTRACTOR and OWNER as insureds and subcontractors to all levels as additional insureds, as their respective interests appear.
c. The builder's risk insurance limits shall initially be for the full amount of the Project (plus existing construction) price shown in the Agreement document and shall be maintained in full force and effect at all times between the signing of the contract and final acceptance of the completed work by OWNER at an amount equaling the estimated cost to OWNER of rebuilding.

F. CONTRACTOR shall be responsible for payment of any deductibles under any of the above named coverages.

ARTICLE 59 – PROOF OF INSURANCE COVERAGE

A. CONTRACTOR shall deliver in triplicate proof of carriage of required insurance. This proof shall be presented with the required Payment and Performance Bonds and return of other Contract Documents.

B. CONTRACTOR shall not commence work or allow any subcontractor to commence work under this contract until CONTRACTOR has obtained all required insurance and certificates, which shall be delivered to and approved by OWNER.

C. Certificates and insurance policies shall include the following:

1. A clause stating:
“This policy shall not be canceled or reduced in required limits of liability or amount of insurance until notice has been mailed to certificate holder stating the date of cancellation or reduction. The date of cancellation or reduction may not be less than 30 days after the date of mailing the notice."
2. Transcripts from the policies authenticated by the proper office of the insurer evidencing, in particular, those insured, the extent of the insurance, the location of and the operations to which the insurance applies, expiration date, and cancellation and reduction notice.
3. A statement that OWNER is a named additional insured under the policy described and that the insurance policy shall be primary to any insurance or self-insurance maintained by OWNER.

E. OWNER shall be named as certificate holder and additional insured and all certificates with endorsements shall be forwarded in triplicate to OWNER.

F. In the event of modification or cancellation of the policy or policies during the periods of coverage stated in this article, 30 days’ prior written notice of such cancellation shall be delivered or mailed by certified mail, return receipt requested, to OWNER.

G. Acceptance of the certificates of insurance shall not relieve or decrease CONTRACTOR’s liability. Insurance coverage in the minimum amounts set forth in the Contract Documents shall not be construed to relieve CONTRACTOR of liability in excess of such coverage, nor shall it preclude OWNER from taking such other actions as are available to it under any other provisions of the Contract Documents or otherwise in law.

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ARTICLE 60 – INDEMNIFICATION

A. To the fullest extent permitted by law, the CONTRACTOR shall defend, indemnify, and hold harmless the OWNER, Architect, Architect's consultants, the Inspector of Record, the State of California, and their respective agents, employees, officers, volunteers, Boards of Trustees, members of the Boards of Trustees, and directors (collectively "Indemnitees"), from and against claims, damages, losses, and expenses (including, but not limited to attorneys' fees, consultants' and experts' fees, and all other related costs and expenses, (collectively "Claims") arising out of or resulting from: performance of the Work (including, but not limited to) the CONTRACTOR'S or its Subcontractor's use of the Site; the CONTRACTOR'S or its Subcontractor's construction of the Project, or failure to construct the Project, or any portion thereof, excluding only such Claims that arise from the sole or active negligence, or willful misconduct of the Indemnitees, or for defected in design furnished by Indemnitees; the use, misuse, erection, maintenance, operation, or failure of any machinery or equipment including, but not limited to, scaffolds, derricks, ladders, hoists, and rigging supports, whether or not such machinery or equipment was furnished, rented, or loaned by any of the Indemnitees; or any act, omission, negligence, or willful misconduct of the CONTRACTOR or its Subcontractors or their respective agents, employees, material or equipment suppliers, invitees, or licensees but only to the extent caused in whole or in part by the acts or omissions of the CONTRACTOR, its Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to a party, person, or entity described in this Section.

B. The Subcontractors shall defend, indemnify, and hold harmless Indemnitees from and against Claims arising out of or resulting from: performance of the Work, excluding only such Claims that arise from the sole or active negligence, or willful misconduct of the Indemnitees, or for defects in design furnished by Indemnitees, (including, but not limited to) the Subcontractors' use of the Site; the Subcontractors' construction of the Project or failure to construct the Project or any portion thereof; the use, misuse, erection, maintenance, operation, or failure of any machinery or equipment, including, but not limited to, scaffolds, derricks, ladders, hoists, and rigging supports, whether or not such machinery or equipment was furnished, rented, or loaned by any of the Indemnitees; or any act, omission, negligence, or willful misconduct of the Subcontractors or their respective agents, employees, material or equipment suppliers, invitees, or licensees but only to the extent caused in whole or in part by the acts or omissions of the Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to a party, person, or entity described in this Section.

C. In the event more than one Subcontractor is connected with an accident or occurrence covered by this indemnification, then all such Subcontractors shall be jointly and severally responsible to each of the Indemnitees for indemnification, and the ultimate responsibility among such indemnifying Subcontractors for the loss and expense of any such indemnification shall be resolved without jeopardy to any Indemnitee. The provisions of the indemnity provided for herein shall not be construed to indemnify any Indemnitee for its own negligence if not permitted by law or to eliminate or reduce any other indemnification or right which any Indemnitee has by law or equity.

D. The CONTRACTOR'S and the Subcontractor's obligation to indemnify and defend the Indemnitees hereunder shall include, without limitation, any and all claims, damages, and costs: for injury to persons and property (including loss of use), and sickness, disease or death of any person; for breach of any warranty, express or implied; for failure of the CONTRACTOR or the Subcontractor to comply with any applicable governmental law, rule, regulation, or other requirement; and for products installed in or used in connection with the Work.

E. In claims against any person or entity indemnified under this Section by an employee of the CONTRACTOR, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Sections 3.18.1 and 3.18.2 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or a Subcontractor under worker's compensation

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acts, disability benefit acts or other employee benefit acts.

F. In the event the CONTRACTOR enters into any agreement with the owners of any adjacent property to enter upon such property for the purpose of performing this Contract, the CONTRACTOR shall fully indemnify, defend, and hold harmless such person, firm, or corporation, state, or other governmental agency, which owns or has any interest in the adjacent property. The form and content of the indemnification agreement shall be approved by the OWNER prior to commencement of any work on or about such property. These provisions shall be in addition to any other requirements of the owners of the adjacent property.

ARTICLE 61 – ASSIGNMENT

A. The CONTRACTOR, without the written consent of the Owner, shall not substitute any person or entity as a Subcontractor in place of the Subcontractor originally selected under the Agreement; permit any such Subcontract to be assigned or transferred, or allow it to be performed by any person or entity other than such original Subcontractor. Any assignment or substitution made without the prior written consent of the awarding authority shall be void, and the assignees shall acquire no rights in the Contract. Any consent, if given, shall not relieve CONTRACTOR or its Subcontractors from their obligations under the terms of the Contract Documents.

B. Pursuant to the procedure set forth therein, the CONTRACTOR may request to substitute any person or entity as a Subcontractor in place of a Subcontractor originally selected under the Agreement in the following instances:

1. When the Subcontractor originally selected, after having a reasonable opportunity to do so, fails or refuses to execute a written Contract for the scope of work specified in the subcontractor's bid and at the price specified in the subcontractor's bid, when that written Contract, based upon the general terms, conditions, plans and specifications for the Project involved or the terms of that Subcontractor's written bid, is presented to the Subcontractor by the CONTRACTOR;
2. When the listed Subcontractor becomes bankrupt or insolvent;
3. When the listed Subcontractor fails or refuses to perform its Subcontract;
4. When the listed Subcontractor fails or refuses to meet the bond requirements of the CONTRACTOR set forth in Public Contract Code section 4108.
5. When the CONTRACTOR demonstrates to the Owner, that the name of the Subcontractor was listed as the result of inadvertent clerical error;
6. When the listed Subcontractor is not licensed pursuant to the CONTRACTORS License Law; or
7. When the Owner, determines that the Work being performed by the listed Subcontractor is substantially unsatisfactory and not in substantial accordance with the plans and specifications, or the Subcontractor is substantially delaying or disrupting the progress of the Work.
8. When the listed Subcontractor is ineligible to work on a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.
9. When the Owner determines that a listed Subcontractor is not a responsible contractor.

C. Any substitutions of Subcontractors shall not result in any increase in the Contract Sum or result in the granting of any extension of time for the completion of the Project.

D. The CONTRACTOR, as a condition of asserting a claim of inadvertent clerical error in the listing of a Subcontractor, shall, pursuant to Public Contract Code Section 4107.5, within two working days after the time of the prime bid opening by the Owner, give written notice to the Owner and copies of such notice to both the Subcontractor it claims to have listed in error, and the intended Subcontractor who had bid to the CONTRACTOR prior to bid opening. Any listed Subcontractor who has been notified by the CONTRACTOR in accordance with the provisions of this section as to an inadvertent clerical error, shall be allowed six working days from the time of the prime bid opening within which to submit to the Owner and to the CONTRACTOR written objection to the CONTRACTOR'S claim of inadvertent clerical error.

1. In all other cases, the CONTRACTOR must make a request in writing to the Owner for the substitution of a subcontractor, giving reasons therefore. The Owner shall mail a written notice to the listed Subcontractor giving reasons for the proposed substitution. The listed Subcontractor shall have five working days from the date of

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such notice within which to file with the Owner written objections to the substitution.

2. Failure to file written objections pursuant to the provisions of this section within the times specified herein shall constitute a complete waiver of objection to the substitution by the listed Subcontractor and, where the ground for substitution is an inadvertent clerical error, an agreement by the listed Subcontractor that an inadvertent clerical error was made.
3. If written objections are filed, then the Owner shall give five days notice to the CONTRACTOR and to the listed Subcontractor of a hearing by the Owner on the CONTRACTOR'S request for substitution as provided in Public Contract Code Section 4107. The determination by the Owner shall be final.

ARTICLE 62 – SEPARATE CONTRACTS

A. OWNER reserves the right to let other contracts in connection with this Work. CONTRACTOR shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work, and shall coordinate its work with those other contractors.

B. If any part of CONTRACTOR's work depends upon work of any other contractor for proper execution of results, CONTRACTOR shall inspect and promptly report in writing to the Architect any defects in the other contractor's work that render it unsuitable for proper execution or results. CONTRACTOR's failure to inspect and report shall constitute its acceptance of any other contractor's work as fit and proper for reception of its work except as to defects which may develop in another contractor's work after execution of CONTRACTOR's work.

C. To ensure proper execution of CONTRACTOR's subsequent work, CONTRACTOR shall measure and inspect work already in place and shall report in writing to the Architect any discrepancy between executed work and the Contract Documents.

D. CONTRACTOR shall ascertain to CONTRACTOR's satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by OWNER in connection with the Project, in order that CONTRACTOR may perform the work in light of any other contracts. Nothing contained in the Contract Documents shall be interpreted as granting to CONTRACTOR exclusive occupancy of the Project site. CONTRACTOR shall not cause any unnecessary hindrance or delay to any other contractor working on the Project. If simultaneous execution of any contract for the Project is likely to cause interference with performance of some other contract or contracts, OWNER shall decide which contractor shall cease work temporarily and which contractor shall continue or whether work can be coordinated so that the contractors may proceed simultaneously. OWNER shall not be responsible for any damage suffered or extra costs incurred by CONTRACTOR resulting directly or indirectly from the award or performance or attempted performance of any other contract or contracts on the Project, or caused by any decision or omission of OWNER regarding the order in performing or coordinating the contracts.

ARTICLE 63 – OWNER'S RIGHT TO TERMINATE CONTRACT

Termination for Cause:

A. OWNER may serve upon CONTRACTOR and its surety written notice of OWNER's intention to terminate the Construction Agreement, without prejudice to any other right or remedy, upon the occurrence of any of the following circumstances:

1. If CONTRACTOR refuses or fails to pursue the Work or any part with sufficient diligence to ensure its completion within the time specified, or any extension of time;
2. If CONTRACTOR refuses or fails to complete the Work within the time required;
3. If CONTRACTOR is adjudged a bankrupt, or makes a general assignment for the benefit of its creditors;
4. If a receiver is appointed on account of CONTRACTOR's insolvency;
5. If CONTRACTOR persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials to complete the Work in the time specified, except in cases for which extension of time is provided;
6. If CONTRACTOR fails to make prompt payment to subcontractors or for material or labor;

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7. If CONTRACTOR persistently disregards laws, ordinances, or instructions of OWNER;
8. If CONTRACTOR or its SUBCONTRACTORS violates any of the provisions of the Contract Documents.

B. The notice of intent to terminate shall contain the reasons for termination.

C. Unless the identified condition(s) or violation(s) ceases and arrangements satisfactory to OWNER for correction are made within 10 days after service of the notice, the Construction Agreement may be terminated, in the total discretion of OWNER. In that event, CONTRACTOR shall not be entitled to receive any further payment until the Work is completed.

D. In the event of OWNER's election to terminate, OWNER shall immediately serve written notice of termination upon CONTRACTOR and upon surety on CONTRACTOR's Performance Bond, and the surety shall then have the right to take over and perform this contract; provided however that if within seven days after service upon the surety of the notice of election to terminate, the surety does not give OWNER written notice of its intention to take over and perform the Construction Agreement, or does not commence performance within 15 days after the date of service of the notice of termination by OWNER on surety, OWNER may take over and complete the Work by contract or by any other method it deems advisable.

E. CONTRACTOR and its surety shall be liable to OWNER for any excess cost or other damages incurred by OWNER. If OWNER takes over the Work as provided above, OWNER may exclude CONTRACTOR and the surety from the premises, or any portion of the premises, and take control of the premises without liability and without affecting the liability of CONTRACTOR and the surety for completion of the Work. In addition, OWNER may take possession of and utilize in completing the Work any materials, appliances, equipment, and other property belonging to CONTRACTOR on the work site necessary for completion of the Project, without liability.

F. If the unpaid balance of the contract price exceeds the expense of finishing the Work, including without limitation compensation for additional architectural, managerial, inspection, and administrative services, the excess shall be paid to CONTRACTOR. If the expense exceeds the unpaid balance, CONTRACTOR shall pay the difference to OWNER. Any expenses incurred by OWNER, and any damage incurred through CONTRACTOR's default, shall be certified by the Architect.

G. These provisions are in addition to and not a limitation on any other rights or remedies available to OWNER.

Termination for Convenience:

H. OWNER has discretion to terminate this Agreement at any time and require CONTRACTOR to cease all work on the project by providing CONTRACTOR written notice of termination specifying the desired date of termination. Upon receipt of written notice from OWNER of such termination for OWNER's convenience, CONTRACTOR shall:

1. Cease operations as directed by OWNER in the notice;
2. Take any actions necessary, or that OWNER may direct, for the protection and preservation of the Work; and
3. Maintain any insurance provisions required by the Contract Documents.

In case of termination for OWNER's convenience, CONTRACTOR shall be entitled to receive payment from OWNER for work satisfactorily executed and for proven loss with respect to materials, equipment, and tools, including overhead and profit for that portion of the work completed. In the case of termination for convenience, OWNER shall have the right to accept assignment of subcontractors. The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to OWNER.

ARTICLE 64 – NO WAIVER

The failure of OWNER in any one or more instances to insist upon strict performance of any of the terms of the Contract Documents, or to exercise any option conferred in them, shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion.

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ARTICLE 65 – EXCISE TAXES

If any transaction under the Contract Documents constitutes a sale on which a federal excise tax is imposed under federal excise tax law, and the sale is exempt from the excise tax because it is a sale to a state or local government for its exclusive use, upon request OWNER will execute a certificate of exemption which will certify that (1) OWNER is a political subdivision of the State for the purpose of such exemption, and (2) the sale is for the exclusive use of OWNER. No excise tax for such materials shall be included in any bid price.

ARTICLE 66 – NOTICE OF TAXABLE POSSESSORY INTEREST

The terms of the Contract Documents may result in the creation of a possessory interest. If a possessory interest is vested in a private party to the Contract Documents, the private party may be subjected to the payment of property taxes levied on such interest.

ARTICLE 67 – ASSIGNMENT OF ANTITRUST ACTIONS

A. Public Contract Code Section 7103.5(b) provides:

"In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body (OWNER) all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sect. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties."

B. For itself and all subcontractors, CONTRACTOR agrees to assign to OWNER all rights, title, and interest in and to all such causes of action CONTRACTOR and all subcontractors may have under the Contract Documents. This assignment shall become effective at the time OWNER tenders final payment to CONTRACTOR, and CONTRACTOR shall require assignments from all SUBCONTRACTORS to comply with this requirement.

ARTICLE 68 – PATENTS, ROYALTIES, AND INDEMNITIES

CONTRACTOR shall hold harmless OWNER and its governing board or other governing body, officers, agents, and employees from liability of any nature or kind, including cost and expense, for or on account of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Work of the Contract Documents, including its use by OWNER, unless otherwise specifically provided in the Contract Documents and unless such liability arises from the sole negligence, active negligence, or willful misconduct of OWNER.

ARTICLE 69 – STATE AUDIT

Pursuant to and in accordance with the provisions of Government Code Section 8546.7, CONTRACTOR and any subcontractor connected with the performance of the Contract Documents involving the expenditure of public funds in excess of $10,000, including, but not limited to the cost of administration of the Contract Documents, shall be subject to examination and audit by the State of California, either at the request of OWNER or as part of any audit of OWNER, for a period of four years after final payment is made under the Contract Documents.

ARTICLE 70 – PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Every provision of law and clause required by law to be inserted in the Contract Documents shall be deemed to be inserted, and the Contract Documents shall be read and enforced as though it were included. If through mistake or otherwise any provision is not inserted or is not correctly inserted, upon application of either party the Contract Documents shall be

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amended to make the insertion or correction. All references to statutes and regulations shall include all amendments, replacements, and enactments on the subject which are in effect as of the date of the Contract Documents and any later changes which do not materially and substantially alter the positions of the parties.

ARTICLE 71 – NOTICE AND SERVICE

A. Any notice from one party to the other under the Contract Documents shall be in writing and shall be dated and signed by the party giving the notice or by a duly authorized representative of the party. Any notice shall not be effective for any purpose unless served in one of the following ways:

B. If notice is given to OWNER, by personal delivery to OWNER or by depositing the notice in the United States mail, enclosed in a sealed envelope addressed to OWNER and sent by registered or certified mail with postage prepaid.

C. If notice is given to CONTRACTOR, by personal delivery to CONTRACTOR or to CONTRACTOR's superintendent at the Project Site, or by depositing the notice in the United States mail, enclosed in a sealed envelope addressed to CONTRACTOR at its regular place of business or at such address as may have been established for the conduct of work under the Contract Documents, and sent by registered or certified mail with postage prepaid.

D. If notice is given to surety or other persons, by personal delivery or by depositing the notice in the United States mail, enclosed in a sealed envelope addressed to the surety or person at the address last communicated by the surety or other person to the party giving notice, and sent by registered or certified mail with postage prepaid.

ARTICLE 72 – DISABLED VETERAN BUSINESS ENTERPRISE COMPLIANCE

A. In accordance with Education Code Section 17076.11, OWNER has a participation goal for disabled veteran business enterprises of at least three percent per year of the overall dollar amount of funds allocated to OWNER by the State Allocation Board pursuant to the Leroy F. Greene School Facilities Act of 1998 for construction or modernization and expended each year by the school district.

B. Prior to, and as a condition precedent for final payment under any contract for such project, CONTRACTOR shall provide appropriate documentation to OWNER identifying the amount paid to disabled veteran business enterprises in conjunction with the Contract Documents, so that OWNER can assess its success at meeting this goal.

END OF SECTION 00 7210

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SECTION 00 9110 - ADDENDA

1. In accordance with Section 4-338(a) of the California Administrative Code, 2025 Edition, changes or alterations of the approved plans and specifications prior to the letting of a construction contract for the Work shall be made by means of addenda, which shall be submitted to and approved by Division of the State Architect (DSA) prior to distribution to contractors.

2. Addenda shall be stamped and signed by the Architect or Engineer in general responsible charge of preparation of the plans and specifications, and by the Architect or Engineer delegated responsibility for the portion affected by the addenda.

3. Addenda issued during bidding, if any, will be inserted following this page in the Contract Documents sets issued for construction.

4. The provisions of all Addenda shall become part of the Contract Documents and Contractor shall be obligated to construct the Project in accordance with the Contract Documents as modified or supplemented by the addenda provisions.

END OF SECTION 00 9110

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SECTION 01 1100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY:

A. Related Sections: Close coordination between this Section, the General and Supplementary Conditions, and Divisions 1 through 33 is required.

B. Project Location: 41932 Sierra Dr., Three Rivers, CA 93271

C. Project: The Project consists of the total construction of which the Work performed under the Contract Documents is a part and which may include construction by the Owner or by separate contractors, for:

NEW SNACK BAR/ ATHLETIC STORAGE BLDG.
AT THREE RIVERS UNION ELEMENTARY SCHOOL

D. Work: The Work of the Project consists of all labor, material, equipment, and services to perform all selective demolition and construction required by the Contract Documents, including but not limited to 1 single-story wood frame buildings, total floor area of 840 square feet, with related on-site and improvements.

E. Applicable Codes: All work shall be performed in accordance with the plans, specifications and the following regulations:
1. 2025 Building Standards Administrative Code, Part 1, Title 24 CCR.
2. 2025 California Building Code (CBC), Part 2, Title 24 CCR.
3. 2025 California Electrical Code (CEC), Part 3, Title 24 CCR.
4. 2025 California Mechanical Code (CMC) Part 4, Title 24 CCR.
5. 2025 California Plumbing Code (CPC), Part 5, Title 24 CCR.
6. 2025 California Energy Code (CEC), Part 6, Title 24 CCR.
7. 2025 California Wildland-Urban Interface Code, Part 7, Title 24 CCR.
8. 2025 California Fire Code, Part 9, Title 24 CCR.
9. 2025 California Green Building Standards Code (CALGreen), Part 11, Title 24 CCR.
10. 2025 California Referenced Standards, Part 12, Title 24 CCR.
11. Title 19 CCR, Public Safety, State Fire Marshal Regulations.
12. 2025 NFPA 72 National Fire Alarm Code, as amended.
13. 2025 NFPA 80 Fire Door and Other Opening Protectives.

F. Conflicts in the Drawings and Specifications:
1. When conflicts are noticed prior to bidding, the bidder shall notify the architect immediately in order that an addendum can be issued to all bidders prior to bidding. When the discrepancy is noticed after the bid, the architect shall be notified and will review the discrepancy and interpret the intent. For the purpose of bidding and interpreting, **the most restrictive and potentially most expensive condition may prevail.**
2. In the case of ambiguity, conflict, or lack of information, the Architect shall respond with reasonable promptness and provide additional instructions, by means of drawings and/or written instructions, as may be otherwise necessary for proper execution of the work. All such drawings and instructions shall be consistent with the contract documents, true developments thereof, and reasonably inferable therefrom.

1.2 DIVISION OF THE STATE ARCHITECT REQUIREMENTS

A. Addenda: Changes or alterations of approved plans or specifications that affect structural, fire/life safety, or

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accessibility portions of the Project prior to letting a construction contract shall be made by means of addenda submitted to and approved by DSA in accordance with Section 4-338, California Administrative Code, Title 24, Part 1, California Code of Regulations.

B. Changes: Changes or alterations of approved plans or specifications that affect structural, fire/life safety, or accessibility portions of the Project after a contract for the work has been let shall be made by means of Construction Change Documents submitted to and approved by DSA in accordance with Section 4-338, California Administrative Code, Title 24, Part 1, California Code of Regulations.
   1. Refer to Section 01 2600 for modification procedures.

1.3 CONTRACTS

A. All work of this project will be let as a single lump sum General Contract.

1.4 FEES AND PERMITS

A. The Owner will be responsible to obtain and pay for the following:

   1. DSA approval and field inspection fee..
   2. Service connection fees to gas, permanent telephone, and permanent power utilities.
   3. City/County engineering review and inspection fee for work performed in the public right-of-way.
   4. Transportation mitigation, water system, wastewater system, storm water system, fire protection, and police protection impact fees.

B. The Contractor shall be responsible to obtain and pay for the following:
   1. Permits and licenses required for work performed in the public right-of-way.
   2. Permits, licenses, and inspection fees required for execution and completion of the Work which are not the responsibility of the Owner.

C. The Contractor shall be responsible for requesting all inspections required by the governing jurisdictions.

1.5 WORK SEQUENCE

A. Refer to Section 00 3100 for preliminary schedule requirements.
B. Construct the Work within the following constraints:

   1. Fire Department Requirements: Maintain access to existing hydrants and maintain existing fire lanes free of obstruction.

1.6 CONTRACTOR'S USE OF PREMISES

A. Limit use of the site to construction activities in the areas indicated.

B. Confine operations to areas within the Contract Limits indicated. Portions of the site beyond areas in which construction operations are indicated shall not be disturbed.

C. Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.

D. Keep driveways and entrances serving the premises clear and available at to the Owner, the Owner's employees, and the public at all times.

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E. Keep bus lanes and drop-off zones clear and available to the Owner at all times.

F. Use of existing toilets within the existing buildings, by the Contractor, shall not be permitted.

G. Store and stockpile materials on the property, excluding public rights-of-way.

1.7 OWNER OCCUPANCY

A. Owner intends to occupy the Project by the date stated in the Agreement as the Contract Completion Date.

B. Owner intends to continue to occupy adjacent portions of the existing site and/or buildings during the entire construction period. Do not interfere with the Owner's and public's use of the site and existing buildings outside of the Contract Limits indicated. Schedule the Work to accommodate Owner occupancy during construction. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

1.8 WORK BY OWNER

A. Items noted as NIC (Not In Contract) will be furnished and installed by the Owner.

B. The Owner will furnish and install the following work:
   1. Miscellaneous equipment and furnishings indicated as NIC.
   2. Grading and re-seeding of existing lawn areas damaged by construction operations.
   3. Repair and reconfiguration of existing landscape irrigation systems made necessary by the Work.

END OF SECTION 01 1100

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SECTION 01 2100 - CASH ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. To provide adequate budget and bonding to cover items not precisely determined by the Owner prior to bidding, allow within the proposed Contract Sum the amounts described in this Section.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Other provisions concerning Cash Allowances are stated in Paragraph 3.8 of the General Conditions.
3. Other provisions concerning Cash Allowances also may be stated in other Sections of these Specifications.

1.2 CASH ALLOWANCE PROVISIONS

A. Costs Included in Cash Allowances: As defined in the General and Supplementary Conditions.

B. Architect Responsibilities: Architect shall meet with the Owner, Contractor and product manufacturer to determine the products for use.

C. Contractor Responsibilities: Cooperate with Owner's testing laboratory to obtain timely information relative to substrate conditions and actual cost of products selected.

D. Differences between the allowance amount and the actual cost of the Work will be adjusted by Change Order.

1.3 ALLOWANCES SCHEDULE

A. Repair of Sprinkler Irrigation System and Landscaping: Include the sum of **$25,000.00** for repairs to the existing sprinkler irrigation system and reseeding of damaged lawn areas.

END OF SECTION 01 2100

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SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes procedures for securing approval of proposed substitutions.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Make submittals in accordance with pertinent provisions of Section 01 3300.

1.2 SUBSTITUTIONS

A. Substitutions: Contractors, subcontractors and/or material suppliers shall comply with the requirements set forth in this Section. All requests for material substitutions shall be submitted with all required substantiating data, comparisons to the material specified, including samples and colors as needed to determine their acceptance. Failure to provide the required documentation is justification for rejection.
1. Prior to Bid: Substitution Requests shall be submitted a minimum of 10 days prior to the bid (if material is to be included on the final addendum). Substitutions may be submitted by general contractor or subcontractor bidders directly to the Architect.
2. After Award of Contract. Substitution Requests may be submitted not more than 35 days after the award of the contract. Substitution requests shall only be submitted by the General Contractor.
3. Substitution Requests received greater than 35 days after the award shall be rejected.

B. Required Substitution Submittal Requirements:
1. Submit required substitution information with a completed “Substitution Request Form” found at the end of this Section.
2. Manufacturer's descriptive literature and product specifications for each product, with the proposed products clearly identified.
3. Comparative specification data between the specified item and the proposed substitution, showing compliance with the specified requirements.
4. Test reports indicating compliance with ASTM standards and ICC ES approvals where compliance with such standards is required by the Contract Documents or where compliance is claimed by the Contractor requesting substitution.
5. Samples of actual material and color, where applicable.
6. **Submittal without this information will automatically be rejected.**

C. Approval of Substitutions:
1. Where the phrase "or equal," or "or equal as approved by the Architect," occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this Work by the Architect.
2. The burden of proof as to the equivalency of any material, process, or product shall rest with the Contractor. Any or all of the following will be used by the Architect to determine if a proposed substitution is equivalent to the specified products or materials:
a. Code and legislative compliance.
b. Functional performance and characteristics.
c. Industry standard compliance.
d. Composition of materials.

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e. Cost.
f. Aesthetic characteristics.
g. Environmental characteristics.
h. Manufacturer characteristics.
i. Installation characteristics.
j. Maintenance requirements.
k. Warranty characteristics.

3. **Approvals shall be at the sole discretion of the Architect and the decision of the Architect shall be final and binding.**
4. The provisions allowing submission of substitutions shall not in any way authorize an extension of time for performance of the Work.

D. Substitution of any material, system, or product that would normally be reviewed by DSA (Structural Safety, Fire/Life Safety, Access Compliance, or Energy) shall be submitted to and approved by DSA prior to fabrication or use. Such substitutions shall be considered Construction Change Document in accordance with Section 01 2600.

1.3 DELAYS

A. Delays in construction arising by virtue of the non-availability of a specified material due to late approval and/or ordering of materials will not be considered as justifying an extension of the agreed Time of Completion, or reason for change.

B. All additional time required by the Architect or his consultants in dealing with such delay will be charged to the Contractor at the rates described in section 01 7700 1.4.B.2.

C. Equal or better material replacements caused by delay in approvals and/or ordering may cost more than the original material specified. Increased costs shall be absorbed by the Contractor and not the Owner.

END OF SECTION 01 2500

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SUBSTITUTION REQUEST FORM

PROJECT: _____

SPECFICIATION SECTION: _____ **ARTICLE/PARAGRAPH:** _____

SPECIFIED SECTION: _____

PROPOSE SUBSTITUTION: _____

Attach complete technical data including laboratory tests and code approvals, detailed drawings, and other data indicating compliance with the requirements of the Contract Documents. Clearly identify products being proposed for substitution. Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

FILL IN BLANKS BELOW:

A. Does the substitution affect dimensions on Drawings? ☐Yes ☐No

B. Will the undersigned pay for changes to the building design, including building design, engineering and detailing costs caused by the requested substitution? **(Negative response may be cause for rejection)**
☐Yes ☐No Explain: _____

C. What affect does substitution have on other trades? _____

D. Differences between proposed substitution and specified item? _____

E. Manufacturer's guarantee of the proposed and specified items are: ☐Same ☐Different
Explain: _____

F. Manufacturer will provide colors that match color selection in finish schedule: ☐Yes ☐No

The Undersigned hereby certifies that the function, appearance, and quality are equivalent to or superior to the specified item. The undersigned agrees to waive all claims for additional costs related to accepted substitution, including costs associated with changes to building design, engineering, or details, which may subsequently become apparent.

Submitted by: _____

Signature: _____ Date: _____

Firm: _____

Phone: _____ Address: _____

Fax: _____

ARCHITECT'S REVIEW AND ACTION

☐Accepted – Make submittals in accordance with Section 01 2500.
☐Accepted as noted – Make submittals in accordance with Section 01 2500.
☐Rejected – Use specified materials.
☐Received too late – Use specified materials.

By: _____ **Date:** _____

MANGINI ASSOCIATES INC.

Remarks: _____

SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES AND FORMS (DSA)

PART 1 - GENERAL

1.1 SUMMARY:

A. This section includes procedural requirements for consideration and execution of modifications to and interpretations of the Contract Documents. This section is intended to supplement requirements set forth in the Agreement and the General and Supplementary Conditions.

B. Section includes:
1. Documentation of changes in Contract Sum and Contract Time.
2. Interpretation and clarification procedures.
3. Change procedures.
4. Correlation of Contractor submittals based on changes.

C. Related Sections:
1. Close coordination between this Section, the General and Supplementary Conditions, and Divisions 1 through 33 is required.
2. Section 00 5210: Agreement, Contract Sum, retainage, payment period, values of unit prices.
3. Section 00 7210: Requirements for progress payments, final payment, changes in the Work.
4. Section 00 7310: Percentage allowances for Contractor's overhead and profit.
5. Section 01 2100: Payment procedures relating to allowances.

1.2 DIVISION OF THE STATE ARCHITECT REQUIREMENTS

A. In addition to the modification requirements of this section, the Agreement, and the General and Supplementary Conditions, the Division of the State Architect (DSA) requires that all changes to the approved construction documents that affect structural, accessibility, or fire/life safety portions of the Project be submitted to and approved by DSA in accordance with the procedure set forth in the current edition of DSA Interpretive Regulation IR A-6.

B. Definitions:
1. **Approved Construction Documents:** The approved construction documents are the drawings, specifications, addenda, deferred approvals, changes and bulletins approved by the governing code jurisdiction.
2. **Change:** A change is a revision, modification, deletion, addition, or substitution to the approved Construction Documents.
3. **Change Order:** A document defining and memorializing construction changes that result in changes to the Construction Contract, usually changing Contract Sum or Contract Time.
4. **Clarification:** A clarification is a statement that clarifies (but does not change) the requirements of the approved Construction Documents.
5. **Construction Change Directive:** A document defining and memorializing construction changes that result in changes to the Construction Contract, usually changing Contract Sum or Contract Time, specifically when the Owner and Contractor do not agree to the terms surrounding the changed work.
6. **Construction Change Documents (CCD):** The documentation of construction changes for DSA purposes, using DSA Form-140, prepared and submitted by the Architect.
7. **Contract:** A written agreement for construction, alteration, reconstruction, repair, or other construction activities.
8. **DSA:** The Division of the State Architect (DSA) is the Authority Having Jurisdiction over Project for code compliance.

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9. **Interpretation:** An interpretation is a statement that interprets (but does not change) the requirements of the approved Construction Documents.

C. **DSA Changes:** In accordance with the current edition of DSA Interpretation of Regulation IR A-6, changes to the approved construction documents that affect structural, accessibility, or fire/life safety portions of the Project made after a contract for the Work has been let shall be made by means of a Construction Change Document submitted and approved by DSA prior to commencement of the Work shown thereon.

D. **Non-DSA Changes:** In accordance with the current edition of DSA Interpretation of Regulation IR A-6, changes to the approved construction documents that do not affect structural, accessibility, or fire/life safety portions of the Project are not required to be submitted to or approved by DSA.

E. **Change Orders:** DSA does not review change orders.

1.3 MODIFICATION PROCEDURES

A. Definitions:
1. **Bulletin:** A bulletin is a document produced by the Architect to memorialize all changes, clarifications and interpretations to the approved Construction Documents. A bulletin may or may not change the Contract Sum or the Contract Time.
a. For the purpose of changes requiring DSA approval, the Architect's Bulletin number will be the same as the DSA CCD number.
2. **Bulletin Log:** The Bulletin Log is an organized method of numbering, logging, cost accounting, and tracking the status of each bulletin issued.

B. For minor changes not involving an adjustment to the Contract Sum or Contract, the Architect will issue a Bulletin which provides supplementary instructions and information, including a detailed description of the change with supplementary or revised drawings and specifications.
1. Proceeding with the changes described in the Bulletin indicates the Contractor's acknowledgment that there will be no change in Contract Sum or Contract Time.
2. In the event the Contractor believes that such Bulletin constitutes a change to the adjustment to the Contract Sum or Contract Time, the Contractor shall immediately give written notice to the Architect within 10 calendar days of receipt of the Bulletin stating that the Contractor considers the Bulletin to be a Change Order. Failure to give such written notice shall waive the Contractor’s right to seek additional time or cost.

C. For changes involving adjustment to the Contract Sum or Contract Time, Architect will issue a Bulletin which provides a detailed description of the proposed change with supplementary or revised drawings and specifications.
1. Contractor shall prepare and submit a fixed price quotation in the form of a Change Order Request (COR) within 14 calendar days.
2. The Owner shall provide written acceptance of the Contractor's COR prior to the Contractor commencing work described in the COR.

D. The Contractor may propose a change by submitting a Change Order Request (COR) to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6200.

E. Execution of Change Orders: Architect will issue Change Orders on the form attached at the end of this Section for signatures of parties as provided in the Conditions of the Contract.

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F. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

G. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

H. Promptly enter changes in Project Record Documents.

1.4 CONTRACT INTERPRETATION AND CLARIFICATION PROCEDURES

A. **Request for Information (RFI):** A written request from the Contractor to the Architect, seeking an interpretation or a clarification of some requirement of the Contract Documents. The Contractor shall clearly and concisely set forth the issue for which it seeks clarification or interpretation and why a response is needed from the Architect. The Contractor shall, in the written request, set forth its interpretation or understanding of the contract's requirements along with reasons why it has reached such an understanding.
   1. The Architect will review all RFI to determine whether they are RFI within the meaning of this term. Project communications; substitution submittals; product data, shop drawings, or samples submittals, or construction schedule submittals shall not transmitted by RFI. Project communications shall not be considered RFI.
   2. Responses to RFI shall be issued within 10 calendar days of receipt of the request from the Contractor unless the Architect determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Architect, the Architect will, within 10 calendar days of receipt of the request, notify the Contractor of the anticipated response time. If the Contractor submits a Request for Information on an activity with 10 calendar days or less of float on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Architect to respond to the request provided that the Architect responds within the 10 calendar days set forth above.
   3. In the event the Contractor believes that a response to a Request for Information will cause a change to the requirements of the Contract Documents, the Contractor shall immediately give written notice to the Architect within 10 calendar days of receipt of the request the Architect stating that the Contractor considers the response to be a Change Order. Failure to give such written notice shall waive the Contractor's right to seek additional time or cost under the Changes article of the General Conditions.
   4. Failure on the part of the Contractor to provide timely Requests for Information does not constitute a crisis solution from the Architect.
   5. Requests for Information that affect structural, accessibility, or fire/life safety portions of the Project made after a contract for the Work has been let shall be submitted to and approved by DSA as a Construction Change Document prior to commencement of the Work shown thereon.

END OF SECTION 01 2600

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(559) 627-0530

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REQUEST FOR INFORMATION RFI NO.

TO: **Mangini Associates Inc.**
Attn:

DATE:
ARCHITECT'S RFI NO.:
PROJECT NO.:
DSA APPL. NO.:

PROJECT:

Subject:
Plan/Spec. Ref:
Question:

Suggestion:

Attachments:

Contractor's Contract Status:

- ☐ No change in contract time of sum required
- ☐ Change in contract time may be required
- ☐ Change in contract sum may be required

The undersigned certifies that the Contractor has thoroughly reviewed all Contract Documents and determines that the information requested is not contained in the Contract Documents.

By: **Company:** **Title:**
Phone: **Fax:** **Email:**

Response:

By: **Date:**
MANGINI ASSOCIATES INC.

CC:

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BULLETIN NO. 1

TO:	Contractor Name Contractor Address Contractor Address	**DATE:** **BULLETIN NO.:** **PROJECT NO.:** **DSA FILE NO.:**	January 1, 2023 One XXXX 54-12
PROJECT:	Project Name Owner Name	**DSA APPL. NO.:**	02-123456

☐ **Supplemental Instructions:** The Work shall be carried out in accordance with the following supplementary instructions, clarifications, or interpretations issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgment that there will be no change in Contract Sum or Contract Time.

☐ **Proposal Request:** Submit an itemized proposal for changes in Contract Sum and/or Time for to the proposed modifications to the Contract Documents described herein. **This is not a Change Order, a Construction Change Directive, or a direction to proceed with the changes to the Work described herein.**

BULLETIN DESCRIPTION:

Item BX.01: Description

Item BX.02: Description

ATTACHMENTS:

Drawing B1.1 dated January 1, 2023

END BULLETIN NO. XX

MANGINI ASSOCIATES INC.

By: _____ **Title:** _____

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CHANGE ORDER NO. 01

TO: Contractor Name
Contractor Address
Contractor Address

DATE: January 1, 2023
CHANGE ORDER NO.: One
PROJECT NO.: XXXX

PROJECT: Project Name
Owner Name

THE CONTRACT IS CHANGED AS FOLLOWS:

See attached Exhibit "A" for Description of Work.

TOTAL ADDS / (DEDUCTS):	ADD / (DEDUCT)	($0.00)
LESS ALLOWANCE AND CONTINGENCY:	(DEDUCT)	($0.00)
TOTAL THIS CHANGE ORDER:		**($0.00)**

Attachments: None

The Contractor agrees that this resolution constitutes a final accord and satisfaction of the Contractor's rights with respect to this change order.

The original Contract Sum was	$
Net change by previous Change Orders	$
The Contract Sum prior to this Change Order was	$
The Contract Sum will be changed by this Change Order	$
The new Contract Sum including this Change Order will be	$

The Contract Time will be (increased) (decreased) (unchanged) DAYS	(0) days
The Date of Completion as of the date of this Change Order therefore is	Month, Day, Year

Contractor: _____ Date: _____
Name, President
Company

Architect: _____ Date: _____
Name, Architect
Mangini Associates, Inc.

Owner: _____ Date: _____
Name, Superintendent
Owner Name

Description of Work

Item No. 1: **BL #0:** Description of Work

DEDUCT ($0.00)

Reason:

Item No. 2: **BL #0:** Description of Work

NO COST

Reason:

Item No. 3: **BL #0:** Description of Work

ADD $0.00

Reason:

TOTAL ADDS $0.00
TOTAL DEDUCTS $0.00
TOTAL THIS CHANGE ORDER ..... ($0.00)

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CONSTRUCTION CHANGE DIRECTIVE NO. 01

TO: Contractor Name
Contractor Address
Contractor Address

DATE: January 2, 2023
CHANGE ORDER NO.: One
PROJECT NO.: XXXX

PROJECT: Project Name
Owner Name

THE CONTRACT IS CHANGED AS FOLLOWS:

See attached Exhibit "A" for Description of Work.

TOTAL THIS CHANGE ORDER: ADD / (DEDUCT) ($0.00)

Attachments: Bulletin Nos. X, XX

When signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Signature by the Contractor indicates the Contractor's agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this Construction Change Directive, however no signature is required by the Contractor.

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum is:
   - ☐ Lump Sum (increase)(decrease) of $XXXXX.XX
   - ☐ Unit Price of $XXXXX.XX per XXXXXXXXXXXXXX
   - ☐ as provided in Subparagraph 7.3.6 of AIA Document A201.
   - ☐ as follows:

2. The Contract Time is proposed to (be adjusted)(remain unchanged). The proposed adjustment, if any, is (an increase of XXX days) (a decrease of XXX days).

Contractor: _____ Date: _____
Name, President
Company

Architect: _____ Date: _____
Name, Architect
Mangini Associates, Inc.

Owner: _____ Date: _____
Name, Superintendent
Owner Name

Description of Work

Item No. 1: **BL #0:** Description of Work

DEDUCT ($0.00)

Reason:

Item No. 2: **BL #0:** Description of Work

NO COST

Reason:

Item No. 3: **BL #0:** Description of Work

ADD $0.00

Reason:

TOTAL ADDS $0.00
TOTAL DEDUCTS $0.00
TOTAL THIS CHANGE ORDER ..... ($0.00)

SECTION 01 2910 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.

B. Related Sections:
1. Section 00 7210: General Conditions related to payment procedures.
2. Section 01 3210: Construction schedules and schedule updates.

1.2 SCHEDULE OF VALUES

A. One week prior to first application for payment, submit proposed Schedule of Values to Architect.
1. Meet with the Architect and determine additional data, if any, required to be submitted.
2. Secure Architect's approval of Schedule of Values prior to submitting first application for payment.
3. Without documentation, the Architect will value the work and spread the costs throughout the project.

B. Construction Schedule Correlation: Schedule of Values line items shall be identical to construction schedule activity items.

C. Activity Dollar Value: Assign a dollar value to each activity which includes overhead and profit.

D. Construction Activity Breakdown:
1. Limit activities to a single floor level.
2. Separate vertical activities from horizontal activities.
3. Separate site work into quadrants.
4. Separate on-site work from off-site work.
a. Additionally, separate utility work from point of connection up to and including any metering devices from the balance of “on-site” utility work.
5. For plumbing, mechanical, and electrical work, separate activities into underground, rough-in, and finish activities.
6. Separate costs (cabling, devices, installation, programming, testing) for each of the following systems from the other power and lighting electrical costs:
a. Fire alarm.
b. Data
c. Telephone.
7. For concrete work, separate activities into footings, exterior walks, interior slabs, curbs/mowstrips.

E. Stored Materials: When the Contractor desires to request payment for stored materials (on-site or off-site), such materials shall be identified in the schedule as a material line item. Materials not identified as material line item will not be considered for payment as stored materials and will only be considered for payment when incorporated into the Work.

F. Division 1 Activities: At a minimum, break down Division 1 costs into the following categories:
1. Mobilization.
2. Surveying.
3. Supervision/administration.
4. Bonds and insurance.

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5. Temporary facilities and controls.
6. Demobilization.

G. Cost Correlation: Progress in terms of Contractor's applications for payment shall be measured as a percentage and shall be based on an estimate of actual dollar value of work completed and materials stored, versus total dollar value for each activity included in Schedule of Values, less applicable retainage.

1.3 QUALITY ASSURANCE

A. Assure arithmetical accuracy of the sums described.

B. When so requested by the Architect, provide copies of the subcontracts or other data acceptable to the Architect, substantiating the sums described.

1.4 PAYMENT FOR STORED MATERIALS

A. The Contractor is encouraged to order materials early in order to prevent delays. **Delays arising from non-availability of a specified material due to late approval and/or ordering of materials will not be considered as justifying an extension of time or reason for change. Refer to Section 01 6200.**

B. The Architect and Owner will consider payment for materials stored properly in accordance with the General Conditions. Payment for materials stored off-site will require, at a minimum:
1. Storage at a bonded or insured yard or warehouse with the stored materials properly tagged and identifiable for the project;
2. Insurance certificate acceptable to the Owner naming the Owner as additional insured, with the stored items specifically described on the certificate;
3. Verification by the Inspector of Record;
4. Manufacturer's invoices for materials and freight.

1.5 APPLICATIONS FOR PAYMENT

A. **General:** Use AIA Document G702, "Application for Payment" as summary and certification page.

B . **Initial Application for Payment:** Submittal of the following items is a condition precedent to certification and payment of the first application for payment. The Architect may refuse to certify payment, and the Owner shall have the right to refuse to pay any certified amount, if the Contractor has not completed or submitted any or all of the following:
1. Listing of subcontractors and principal suppliers and fabricators.
2. Schedule of Values approved by the Architect.
3. Construction Schedule reviewed by the Architect.
4. Listing of Contractor's staff assignments and principal consultants.
5. Inspector of Record signature on the AIA G702 document.

C. **Progress Payments:** Submittal of the following items is a condition precedent to certification and payment of each progress application for payment. **The Architect may refuse to certify payment, and the Owner shall have the right to refuse to pay any certified amount, if the Contractor has not completed and submitted any or all of the following:**
1. Updated construction schedule as specified in Section 01 3210.
2. Recovery schedule specified in Section 01 3210 when required.
3. Inspector of Record signature on the AIA G702 document.

D. **Final Application for Payment:** Submittal of the following items is a condition precedent to certification and

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payment of the final application for payment. **The Architect may refuse to certify payment, and the Owner shall have the right to refuse to pay any certified amount, if the Contractor has not completed and submitted any or all of the following:**

1. Administrative actions and submittals specified in Section 01 7700 as preliminary procedures for Final Acceptance.
2. Inspector of Record signature on the AIA G702 document.

END OF SECTION 01 2910

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SECTION 01 3110 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

A. To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Architect will conduct project meetings throughout the construction period. The Contractor's relations with his subcontractors and materials suppliers and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings content.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 SUBMITTALS

A. Agenda Items: To the maximum extent practicable, advise the Architect at least 48 hours in advance of project meetings regarding items to be added to the agenda.

B. Minutes: The Architect will compile minutes of each project meeting, and will furnish one copy to the Contractor and to the Owner. Recipients of copies may make and distribute such other copies as they wish.

1.3 QUALITY ASSURANCE

A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.4 MEETING SCHEDULE

A. Except as noted below for Preconstruction Meeting, project meetings will be held weekly.

B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

1.5 MEETING LOCATION

A. The Architect will establish meeting location. To the maximum extent practicable, meetings will be held at the job site.

1.6 PRECONSTRUCTION MEETING

A. Preconstruction Meeting will be scheduled to be held within 15 working days after the Owner has issued the Notice to Proceed.

1. Mandatory attendance by authorized representatives of the Contractor and major subcontractors, including but not limited to:
    a. Earthwork.
    b. Concrete.
    c. Rough carpentry.
    d. Roofing.
    e. Plumbing/mechanical.
    f. Electrical.

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g. Data

2. The Architect will advise other interested parties, including the Owner, and request their attendance.

B. Minimum Agenda: Data will be distributed and discussed on at least the following items:
1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Architect.
2. Channels and procedures for communications.
3. Construction schedule, including sequence of critical work.
4. Contract Documents, including distribution of required copies of original Documents and revisions.
5. Processing of Shop Drawings and other data submitted to the Architect for review.
6. Processing of Requests for Information, Proposal Requests, Change Orders and Payment Requests.
7. Rules and regulations governing performance of the Work; and
8. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

1.7 PROJECT MEETINGS

A. Attendance:
1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
2. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.

B. Minimum Agenda:
1. Review, revise as necessary, and approve minutes of previous meetings.
2. Review progress of the Work since last meeting, including status of submittals for approval.
3. Identify problems which impede planned progress.
4. Develop corrective measures and procedures to regain planned schedule.
5. Complete other current business.
6. Verify that Record Drawings are current and accurate.

C. Revisions to Minutes:
1. Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting.
2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
3. Challenge to minutes shall be settled as priority portions of "old business" at the next regularly scheduled meeting.

END OF SECTION 01 3110

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SECTION 01 3210 - CONSTRUCTION PROGRESS SCHEDULES (Bar Chart)

PART 1 - GENERAL

1.1 SUMMARY

A. Prepare and maintain construction schedules as specified in this Section.

B. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   1. Section 00 3110: Preliminary Schedules.
   2. Section 01 1110: Work sequences and constraints, Owner occupancy, and Owner furnished items.
   3. Section 01 2910: Schedule of values and payments.
   4. Section 01 3300: Requirements for shop drawings, product data, and samples.
   5. Section 01 7700: Project completion and closeout requirements.

1.2 SUBMITTALS

A. Schedule Development Submittals: Submit 3 color copies of schedule diagram with each submittal.

B. Schedule Updates: Submit 3 color copies of schedule diagram with each with each application for payment.

1.3 SCHEDULE DEVELOPMENT AND UPDATES:

A. Schedule: Submit schedule within 30 calendar days after date of Owner's Notice of Award and prior to first application for payment. Architect may refuse to certify application for payment if a construction schedule has not been submitted.

B. Schedule Updates:
   1. Update schedule monthly as part of the application for payment specified in Section 01 2910.
      a. Record actual start and finish dates.
      b. Graphically indicate progress of each active activity and remaining duration.
   2. In addition to updates required for applications for payment, provide a complete schedule submittal whenever the Contractor's planned sequence of construction is changed, when approved change orders impact critical path activities, or when time extension is approved by change order.

1.4 RESPONSIBILITY FOR THE SCHEDULE

A. Responsibility for construction planning and the effective and efficient implementation of such to meet the Contract Completion Date and any required milestones are the sole responsibility of the Contractor.

B. Review of the schedule and subsequent revisions by the Owner or the Architect shall be limited to review for compliance with the requirements of the Contract Documents; review shall not imply agreement of the Owner or Architect to the Contractor's planned procedures, coordination, scheduling, etc., as being appropriate or reasonable. Comments offered by the Owner or Architect relating to schedule logic or sequence which are the Contractor's responsibility are offered as a courtesy and are not conditions of acceptance.

C. Non-Waiver:
   1. If the accepted schedule and subsequent revisions do not include contractually required constraints, review and/or acceptance of the schedule and subsequent revisions by the Owner or the Architect shall

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not waive such requirements.

2. Review of the schedule and subsequent revisions by the Owner or the Architect shall not constitute a waiver of any contract requirement.
3. Contract requirements shall take precedence in the event of conflicts between the accepted schedule and contract requirements.

1.5 CONTRACT MODIFICATIONS

A. When a contract modification is required, submit proposed schedule revisions reflecting the proposed change impact.

B. Time Impact Analysis: Time impact analysis shall be provided as support of a time extension request, claim or request for equitable adjustment by the Contractor.
1. Submit a time impact analysis illustrating the influence of each change or delay on the Contract Completion Date or milestones. The current monthly updated schedule accepted by the Architect shall be used to display the impacts of the change. No other non-approved modifications shall be incorporated into the schedule being used to justify the change impact.
2. Each time impact analysis shall include a fragmentary network demonstrating how the Contractor proposes to incorporate the impact into the schedule. The fragmentary network shall identify the predecessors to the new activities and demonstrate the impact to successor activities.
3. Include a narrative report describing the effects of new activities and relationships to interim and Contract Completion Dates.
4. Include written certification signed by the major subcontractors that they have reviewed and accepted proposed schedule revisions.

C. Determination of contract time extension shall be based on the schedule updates in effect for the time period in question, and other factual information. Actual delays found to be caused by the Contractor's own actions, which result in the extension of the schedule, will not be cause for time extension to the Contract Completion Date.

1.6 TIME EXTENSIONS

A. Extension of time for performance will be granted only to the extent that a delay occurs which impacts activities currently on the critical path, consumes all available float, and extends completion of the Work beyond the current Contract Completion Date.

B. The Contractor acknowledges and agrees that delays in activities which, according to the schedule, does not in fact actually affect any milestone completion or the Contract Completion Date shown on the schedule at the time of delay, will not be a basis for a time extension.

1.7 SCHEDULE RECOVERY

A. The Contractor shall take action to put the Project back on schedule, at no additional cost to the Owner, when it becomes apparent from the current schedule that, through no fault of the Owner:
1. The critical path becomes more than 5% behind the time remaining for completion of the Work.
2. Any milestone required by the Contract Documents may not be met.
3. Any schedule update reveals that the Work will complete later than the Contract Completion Date.

B. Action by the Contractor to put the Work back on schedule may include any or all of the following:
1. Increase construction manpower;

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2. Increase the number of working hours per shift, shifts per working day, working days per week, or the amount of construction equipment, or any combination of the foregoing;
3. Reschedule activities to achieve maximum practical concurrency of activities;
4. Expedite delivery of materials.

C. Notify the Architect of the specific measures taken or planned to increase the rate of progress together with an estimate of when scheduled progress will be regained and submit planned revisions to construction schedule prior to implementation of such measures and schedule revisions.

1.8 VOLUNTARY ACCELERATION

A. Early completion or voluntary acceleration of the schedule by the Contractor is acceptable provided that:
1. The Owner is agreeable to such acceleration and so notifies the Contractor in writing;
2. At the time of submission of the Preliminary Construction Schedule, such acceleration is clearly indicated and the Owner is notified of actions on the Owner's part necessary to accommodate the change or acceleration;
3. The Owner is compensated for any inconvenience or expense associated with such acceleration;
4. The time between early completion date and the Contract Completion date is identified as a schedule activity as “Project Float Time.” Such “Project Float Time” within the construction schedule is not for the exclusive use or benefit of either the Owner or the Contractor but is a jointly owned, expiring project resource available to both parties as needed to meet contract milestones and the Contract Completion Date.

B. The Owner may require various changes in the Work. Pursuant to the voluntary acceleration and float sharing provisions of this Section, no time extensions will be granted nor delay damages paid until a delay occurs that impacts activities currently on the critical path, consumes all available float, and extends completion of the Work beyond the current Contract Completion Date.

1.9 PROJECT SCHEDULE

A. Contract Time: As established by the Agreement Between the Owner and Contractor and amended by change order.

B. Progress of the Work:
1. Time is of the essence in the performance of this Contract.
2. Schedule the Work in such a manner as to provide for timely completion.
3. Begin schedule with the Notice to Proceed and conclude with the late-finish date of the critical path on the Contract Completion Date which shall be the date of Notice of Completion.

C. Plan of the Work: The schedule shall reflect Contractor’s actual plan for prosecution of the Work.

D. DSA Oversight Process: In connection with the DSA Construction Oversight Process, which includes the use of inspection cards and review of changes to the DSA-approved construction documents, the Contractor must (a) include specific tasks in its baseline schedule to take into account these procedures since they are critical path issues; and (b) include a reasonable amount of float in the baseline schedule to accommodate the additional time required by these DSA procedures.

E. Detail: Time scale network diagram in calendar days and prepare at level of detail and logic which will schedule as separate activities all salient features of the Work. At a minimum, include:
1. Project mobilization.
2. Schedule preparation and updates.

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3. Submittal and shop drawing preparation.
4. Review and DSA approval of deferred approvals.
5. Review of submittals and shop drawings for critical materials and equipment.
6. Procurement, fabrication, delivery, and installation of major equipment and critical materials.
7. Testing and inspection.

8. Significant activities of the work of each trade.
    a. Separate plumbing, mechanical, and electrical into underground, rough-in, and finish activities.
    b. Separate concrete work activities into footings, exterior walks, interior slabs, curbs/mowstrips.
9. Separate the following systems from other power and lighting electrical activities:
    a. Fire alarm system.
    b. Data, telephone, intercom / clock, intrusion alarm, audio visual systems.
10 Power shut-downs.
11. All milestone dates.
12. Testing of concrete floor slabs for moisture and pH.
13. Remediation of concrete floor slabs due to unsatisfactory moisture or pH conditions.
14. Final clean-up.
15. Start-up and testing.
16. Commissioning.
17. Correction list work.
18. Building flush out (100% outside air for 14 days).
19. Demobilization.
20. Closeout documentation.

F. Provide for schedule, logic, and operating constraints of the Work as specified in Section 01 1100.

1.10 BAR CHART SCHEDULE

A. Prepare a bar chart graphically showing the order of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished, as planned by the Contractor. Indicate a separate time bar for each activity.

B. Format:
1. Sequence of Listings: The Table of Contents of this Project Manual.
2. Coordination of Listings: Correspond each schedule activity to a line item listed in the Schedule of Values. Refer to Section 01 2910.
3. Time Scale: Provide a continuous line to identify the first working day of each week.

C. Identify work of each separate stage and other logically grouped activities. In the case of multiple buildings on 1 site, separate the significant elements of the work of each trade for each building as a sub-schedule. Graphically group activities of separate stages and buildings, **do not use a random (or scattered) format.**

1.11 SCHEDULE ACTIVITIES

A. **Schedule Activities:**
1. 30 day maximum duration.
2. Limit activities to a single floor level.
3. Separate vertical activities from horizontal activities.
4. Separate site work into quadrants.
5. Separate on-site work from off-site work.

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B. **Activity Information:** Indicate the following information for each activity on network diagram:
   1. Activity description.
   2. Activity number corresponding to the CSI section numbers listed in the Table of Contents.
   3. Duration.
   4. Start and completion dates.
   5. Status indicator (started or complete).

C. Milestone Activities: Indicate date on the diagram for each of the following milestone activities:
   1. Start project: Start schedule no earlier than the contract award date and the project duration shall start on the Notice to Proceed date.
   2. Early completion: If the Contractor's schedule shows completion of the project prior to the Contract Completion Date, the Contractor shall include an activity named "contractor early completion".
   3. End project: Include as the last activity an activity named "end project" finish date equal to the Contract Completion Date.

END SECTION 01 3210

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SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements, all as described in this Section.
   1. **The section includes requirements for building systems described as Deferred Approval Items on the drawings or in the specifications.**

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Other requirements for submittals may be described in pertinent Sections of these Specifications.
   3. Section 01 3560: High Performance Criteria Summary.

C. Work not Included:
   1. Submittals not required by the Contract Documents will not be reviewed by the Architect.
   2. The Contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Architect unless specifically called for within the Contract Documents.

1.2 SUBMITTALS

A. Make submittals of Shop Drawings, Samples, substitution requests, and other items in accordance with the provisions of this Section.

B. Substitutions shall comply with the procedures for substitutions specified in Section 01 2500.

C. High Performance Criteria: Submit in accordance with Section 01 3560 - High Performance Criteria Summary under Submittals.

1.3 QUALITY ASSURANCE

A. Coordination of Submittals:
   1. Prior to each submittal to the Architect, the **General Contractor shall** carefully review and coordinate all aspects of each item being submitted.
   2. Verify that each item and the submittal for it conform in all respects with the specified requirements.
   3. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

B. Accuracy of Submittals:
   1. By approving and submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria relate thereto, or will so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

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2. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's review or approval of Shop Drawings, Product Data, Samples, or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal requesting a substitution and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Architect's review thereof.

1.4 USE OF ARCHITECT'S CAD DRAWINGS

A. General:
1. Electronic CAD files of the Contract Drawings may be provided for Contractor's convenience and use in preparing submittals, subject to the requirements of this Section.
2. All requests by subcontractors for CAD drawings shall be transmitted through the Contractor and CAD files released by the Architect shall only be released to the Contractor.

B. Requirements for Release of Architect's Electronic CAD Files:
1. Release of CAD files is subject to Contractor's acceptance of Architect's "Waiver of Liability for Electronic CAD Files", a copy of which is attached at the end of this section.
2. Receipt of executed liability waiver agreement is a condition precedent to releasing architectural CAD files.

C. Requirements for Release of Civil Engineer's Electronic CAD Files:
1. Cost of Civil Engineer's preparation of civil CAD files shall be borne by the Contractor and is in addition to the Contract Sum.
2. Release of civil CAD files is subject to Contractor's acceptance of Civil Engineer's "Waiver of Liability for Electronic CAD Files". Contact the Civil Engineer to obtain the waiver form.
3. Receipt of executed liability waiver agreement is a condition precedent to releasing civil CAD files.

D. The Contractor assumes all liability and risk for use of electronic CAD files. Architectural / engineering drawings are essentially diagrammatic in terms of graphics and are not intended to provide scalable dimensional accuracy. Electronic CAD files are an incomplete representation of the Contract Documents which may not include addendum information or hand drawn additions or modifications. In the event of a conflict between the signed and approved Construction Documents and the electronic CAD files, the signed and approved Construction Documents shall govern.

E. The transfer of CAD files to the Contractor is for the Contractor's convenience only, and does not in any way release the Contractor from the requirement to produce its own shop drawings by the normal method of preparing plans and details by drafting. Delays in the release of CAD files shall not relieve the Contractor of preparing submittals in a timely fashion and such delays shall not provide a basis for claims of delay and damages.

PART 2 - PRODUCTS

2.1 TYPES OF SUBMITTALS

A. Shop Drawings:
1. Scale and Measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.
2. Types of Prints Required: Submit Shop Drawings in the form of blackline prints of each sheet.

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3. Review comments of the Architect will be shown on the sepia transparency when it is returned to the Contractor. The Contractor may make and distribute such copies as are required for his purposes.

B. Manufacturer's Literature:
1. Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show and highlight the portion of the contents being submitted for review.
2. Submit seven copies of each item.

C. Samples:
1. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below.
2. Provide three samples; one to be retained by the Architect, one to be returned to the Contractor, and one to be retained by the Inspector of Record.

D. Colors and Patterns: Unless the precise color and pattern is specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the Architect for selection.

2.2 ELECTRONIC SUBMITTALS

A. Electronic submittal are acceptable in lieu of hard copies providing the following requirements are met:
1. Submittal shall be in PDF format, with book marks for table of contents and each tab, and sub-bookmarks for each item.
2. All text shall be searchable, except text that is part of a graphic.
3. Submittal shall include all items required by the Contract Documents, except a binder is not required.
4. Electronic submittals shall be processed through normal channels. Do not submit directly to the Architect's consultants.
5. Contractor shall provide Owner and Inspector with hard copies of the final Submittal. Coordinate exact number required with the Architect.
6. One hard copy of any submittal may be required upon the Architect's request for use during review.

B. Electronic submittals which do not comply with the above requirements will be rejected.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

A. Consecutively number all submittals.
1. When material is submitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
2. On resubmittals, cite the original submittal number for reference.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.

3.2 GROUPING OF SUBMITTALS

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that

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information is available for checking each item when it is received.

1. Partial submittals may be rejected as not complying with the provisions of the Contract.
2. The Contractor may be held liable for delays so occasioned.

3.3 TIMING AND REVIEW OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.

B. In scheduling, allow at least 30 calendar days for review by the Architect following the Architect's receipt of the submittal, unless mutually agreed otherwise in writing by the Architect and the Contractor.

C. Resubmittal Costs: The Architect and the Architect's consultants will review the original submittal only as part of their services to the Owner. If the time expended in resubmittal reviews exceeds normal resubmittal review time, the costs of resubmittal reviews by the Architect or the Architect's consultants will be paid to the Architect by the Owner as additional services on an hourly basis.

1. The Architect will bill the Owner for the additional services required by the Architect and/or the Architect's consultants for such resubmittal reviews, time expended, and reimbursable expenses incurred, and the Owner shall be reimbursed by deducting the same amount from the Contractor's subsequent Application for Payment.

3.4 REQUIRED SUBMITTALS

A. Provide Submittals as required by each Specification Section.

END OF SECTION 01 3300

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WAIVER OF LIABILITY FOR ELECTRONIC CAD FILES

Electronic CAD files for [Project Name and Location], have been requested by CONTRACTOR. These files are being provided, subject to the following terms and conditions, pursuant to the acceptance and execution of this agreement. For the purposes of this agreement the term ARCHITECT shall mean the Architect and all of its Consultants.

Electronic files provided are compatible with AutoCAD. ARCHITECT makes no representation as to the compatibility of these files with CONTRACTOR'S hardware or software. Due to the potential that the information presented on the electronic files can be modified, unintentionally or otherwise, ARCHITECT has the right to remove all indicia of ownership and or all involvement from electronic display.

Data contained on these electronic files are part of ARCHITECT'S instruments of service which are copyrighted and proprietary in nature and shall not be used by CONTRACTOR or any other entity receiving this data through or from CONTRACTOR for any purpose other than as a convenience in the preparation of shop drawings and field engineering for the referenced project. The CONTRACTOR agrees that the use of digital information provided by the ARCHITECT for any purpose or activity that constitutes the practice of Land Surveying and/or Civil Engineering, as defined by the California Business and Professions Code, will be by or under the direct supervision of a Land Surveyor or Civil Engineer licensed to practice in the State of California. Such practices include, but are not limited to creating a GPS model for earthwork. Any use or reuse by CONTRACTOR or by others will be at CONTRACTOR'S sole risk and without liability or legal exposure to ARCHITECT.

The transfer of electronic files to CONTRACTOR is for the CONTRACTOR'S convenience only, and does not in any way relieve CONTRACTOR from the requirement to produce shop drawings by the normal method of preparing plans and details by drafting. Delays in release of CAD files shall not relieve CONTRACTOR of responsibility for preparing shop drawings or providing field engineering in a timely fashion and such delays shall not provide a basis for claims of delay and damages.

The CONTRACTOR agrees to reciprocate with the ARCHITECT, upon request, relative to drawing files produced by it or its subcontractors for the subject project, under the same conditions as we have received digital files from the ARCHITECT.

The CONTRACTOR assumes all liability and risk for use of architectural / engineering electronic CAD files and agrees these electronic files are not construction documents and that differences may exist between these electronic files and corresponding hard copy construction documents. Electronic CAD files are an incomplete representation of the Contract Documents which may not include addendum information or hand drawn additions or modifications. In the event a conflict arises, signed and sealed hard copy construction documents will govern. By using these electronic files the CONTRACTOR is in no way relieved of its duty to fully comply with the contract documents, including, and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate work with that of other CONTRACTORS on the project.

CONTRACTOR recognizes the instability of electronic storage media and that the transfer of electronic data may not be total or accurate, because of equipment and/or software incompatibility, or changes that may be made by CONTRACTOR and/or other entities receiving this data through or from CONTRACTOR during the editing of the information provided.

CONTRACTOR agrees to make no claim, and hereby waives, to the fullest extent permitted by law, any claim or cause of action against ARCHITECT, ARCHITECT'S officers, directors, employees, agents, or consultants that may arise out of or in connection with CONTRACTOR'S use of the electronic files. CONTRACTOR agrees to the fullest extent permitted by law, to indemnify and hold ARCHITECT and OWNER harmless from any damage, liability, or cost, including reasonable attorneys' fees and costs of defense, arising from any reuse or modification of the plans and specifications by CONTRACTOR or any person or entity which acquires or obtains the plans and specifications. In no event shall ARCHITECT or OWNER be liable for any loss of profit or any damages. It is understood that CONTRACTOR shall be solely responsible for verification of conditions and coordination of their work into the work product.

Under no circumstances shall delivery of the electronic files to CONTRACTOR be deemed a sale by ARCHITECT, and ARCHITECT makes no warranties, either express or implied, of merchantability and fitness for any particular purpose.

CONTRACTOR Name	Printed Name and Title
CONTRACTOR Address	Authorized Signature
	Date

List drawing sheets requested below or attach separate list:

SECTION 01 4320 - DSA CONSTRUCTION OVERSIGHT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes the oversight provided by the Division of the State Owner (DSA) for projects under its jurisdiction.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
1. Section 01 2600: Contract modification procedures and forms.
2. Section 01 4520: Testing and inspection services.

1.2 DEFINITIONS

A. The following definitions apply to terms used in this Section:
1. DSA Approved Construction Documents: Portions of plans, specifications, addenda, deferred submittals, revisions, and construction change documents (CCDs) duly approved by DSA that contain information related to, and affecting Structural Safety, Fire/Life Safety, and Accessibility. While all portions of the construction documents may contain a DSA identification stamp, this stamp is not the approval. The DSA approval is indicated by a letter to the District. This letter clarifies that the approval is limited to Structural Safety, Fire/Life Safety and Accessibility.

1.3 DSA PROCEDURES, INTERPRETATION OF REGULATIONS, AND FORMS

A. The requirements of the following DSA procedural documents shall apply to this Section:
1. DSA Procedure PR 13-01: Construction Oversight Process.

B. The requirements of the following DSA Interpretation of Regulations documents shall apply to this Section:
1. DSA IR A-8: Project Inspector and Assistant Inspector Duties and Performance.
2. DSA IR A-13: Stop Work and Order to Comply.

C. The Project Inspector, assistant inspectors, Laboratory of Record, Architect, other design professionals, and the Owner shall communicate project information and make certain reports pertaining to the status of construction compliance using the following DSA forms:
1. DSA 1 Application for Approval of Plans and Specifications
2. DSA 5 Project/Special Inspector Qualification Record
3. DSA 6-AE Architect/Engineer Verified Report
4. DSA 6-C Contractor Verified Report
5. DSA 6-PI Project Inspector Verified Report
6. DSA 102-IC Construction Start Notice/Inspection Card Request
7. DSA 103 Statement of Structural Tests and Special Inspections
8. DSA 130 Certificate of Compliance - Approved Bleacher/Grandstand Fabricator
9. DSA 140 Application for Approval of Construction Change Document.
10. DSA 151 Project Inspector Notifications
11. DSA 152 Project Inspector Card
12. DSA 154 Notice of Deviations/Resolution of Deviations
13. DSA 155 Project Inspector Semi-Monthly Report
14. DSA 156 Commencement/Completion of Work Notification
15. DSA 291 Laboratory of Record Verified Report

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16. DSA 292 Special Inspectors Employed Directly by the District Verified Report
17. DSA 293 Geotechnical Verified Report

1.4 QUALITY ASSURANCE

A. Project Inspector: The Owner shall employ a DSA approved Project Inspector in accordance with the requirements of the California Code of Regulations, Title 24. The Inspector's duties are specifically defined in Title 24, Part 1, Section 4-342.
   1. The work of construction in all stages of progress shall be subject to the personal continuous inspection of the Inspector.
   2. The Inspector shall have free access to any or all parts of the work at any time.
   3. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep the Inspector fully informed respecting the progress and manner of the work and character of the materials.
   4. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this Contract.

B. DSA Construction Oversight: California Code of Regulations (CCR), Title 24, Part 1, Chapter 4, Article 1 (Sections 4-201 through 4-222) and Group 1, Articles 5 and 6 (Sections 4-330 through 4-344) provide regulations governing the construction process for projects under the jurisdiction of DSA.
   1. Observation of Construction by DSA: The DSA District Engineer conducts occasional site walks to make observations as necessary to ascertain that inspections have been completed diligently. During the site visit, the DSA District Engineer may provide guidance to the Project Inspector, as needed, to ensure enforcement of construction documents.
   2. DSA Field Trip Notes: At the conclusion of the site visit, the DSA Field Engineer issues a Field Trip Note (form DSA 135 or comparable) to the Project Inspector, who shall distribute the field trip note to the school Owner and the responsible design professional.
      a. The field trip note indicates any findings by the Field Engineer that require action by the Project Inspector and/or the Architect and other responsible design professionals to ensure project compliance with Field Act requirements.
      b. The field trip note may include informational comments, including construction status and guidance given to the Project Inspector.
      c. The field trip note becomes a part of the DSA project records.

C. Testing and Special Inspection: Testing required for the project is specified in Section 01 4520 - Testing and Special Inspection Services.
   1. Form DSA-103 is attached to Section 01 4520.
   2. Testing may be required by other Sections that is not specifically noted on Form DSA -103.

1.5 PROJECT INSPECTOR

A. General: The Project Inspector shall perform specific duties in accordance with Title 24, Part 1 (Sections 4-333 and 4-342).
   1. The Project Inspector acts under the direction of the Architect and is subject to supervision by DSA.
   2. The Project Inspector does not have the authority, under Title 24, to direct the Contractor in the execution of the work, nor to stop the work of construction.

B. Code Prescribed Duties:
   1. Maintain Job File: The Inspector shall maintain Project records.
   2. Comprehend of the Construction Documents: The Project Inspector shall study and fully comprehend the requirements of the construction documents in order to provide competent inspection of the work. The Inspector shall:

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a. Consult Architect and other responsible design professionals to resolve uncertainties in the Inspector's comprehension of the plans and specifications prior to construction of that portion of the work.
b. Review requirements for each phase of the construction with the Contractor prior to commencing that phase of the work.
c. Readily identify non-compliant work as the construction progresses to facilitate prompt corrective action.
d. Verify code-compliant implementation of the materials testing and special inspection program.
e. Be involved in the Contractor's interpretation of the construction documents in accordance with Title 24, Part 1, Section 4-343.

3. Continuous Inspection of the Work:
   a. Provide complete and timely inspection of every part of the work.
   b. Provide prompt verbal notification to the Contractor of any deviation so that the deviation can be immediately corrected.
   c. The Project Inspector shall have personal knowledge of the construction, obtained through the Project Inspector's own physical inspection of the work in all stages of its progress.
4. Maintain Records of Inspections: The Inspector shall maintain detailed records of all inspections.
5. Communications Required of the Inspector: The Inspector shall during the course of construction, provide specific code-prescribed notices and reports to the Architect, other responsible design professionals, DSA, the Owner, and the Contractor.
6. Inspector's Monitoring of the Materials Testing and Special Inspection Program: The Inspector is responsible, under the direction of the Architect, for monitoring the work of the laboratory of record (LOR) any Special Inspectors hired directly by the Owner to ensure that all materials testing and special inspections required for the project are satisfactorily completed in accordance with the DSA approved documents. The Project Inspector shall monitor the following aspects of the structural testing and special inspection program:
   a. When DSA approval for special inspectors is required for Owner-employed special inspectors, the Project Inspector shall identify and report any special inspectors on the job site that are not DSA approved.
   b. The Project Inspector shall verify that the Laboratory of Record (LOR) is included on the List of DSA Accepted Testing Laboratories on the DSA website.
   c. The Project Inspector shall verify that the LOR and special inspectors have received sufficient advance notification to perform the required material sampling or special inspection.
   d. The Project Inspector is responsible for verifying that all required material sampling and special inspections have been performed. The Project Inspector is also responsible to observe any special Inspector's on-site presence, performance of duties, the special inspector's documentation of complying and non-complying work, and issuance of deviation notices.
   e. The Project Inspector shall report on DSA 155 the status and resolution of deviations reported by any LOR or special inspector.
7. Monitoring of Assistant Inspectors: The Project Inspector shall provide technical guidance to assistant Inspectors and shall verify the assistant inspectors' comprehension of the construction documents.
   a. The Project Inspector shall also monitor the assistant Inspectors' performance, verifying that the assistant inspectors are properly checking the construction, recording inspections, and performing other assigned duties.
   b. The Project Inspector shall ensure that any assistant inspector is performing the duties indicated on the assistant Inspector's approved form DSA 5-AI.
   c. The Project Inspector shall provide continuous on-site supervision of all assistant Inspectors.

C. Prohibited Duties: The Project Inspector is prohibited from performing functions associated with actual construction work such as:
   1. Performing construction work.
   2. Ordering or purchasing materials.

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3. Directing the work of the Contractor, Sub-Contractors, volunteer labor, or any entity performing construction work.
4. Coordinating or scheduling the construction work.
5. Performing "quality control" of construction.
    a. Quality control is the responsibility of the Contractor.
    b. Quality assurance is the responsibility of the Project Inspector.

D. Ancillary Duties: The Project Inspector may perform duties for the Owner that are not code-prescribed as long as such duties do not interfere with inspection duties.
1. It is the Inspector's responsibility to report all ancillary duties to DSA, the Architect, and the structural engineer.
2. The Inspector shall also report unforeseen time demands that are impacting, or will impact, his or her ability to perform code-prescribed duties.
3. DSA may approve a Project Inspector when (in the opinion of DSA) these ancillary duties would not create a conflict of interest. DSA may withhold approval of a Project Inspector or withdraw approval at any time if the appearance of a conflict of interest arises.

1.6 DSA CONSTRUCTION OVERSIGHT PROCESS

A. Project Inspection Card (Form DSA 152): DSA will issue Project Inspection Cards for each project.
1. The number of inspection cards issued varies by project types. In general, one inspection card is required for each separate building and one for the site work, which includes non-building site structures.
2. The project inspection cards are issued electronically by upload to DSA Box.

B. Use of Project Inspection Card:
1. The Project Inspection Card is considered to be an interim verified report by the project inspector.
2. The Project Inspector signs off the applicable blocks and sections on the form as the work progresses. When signing off the blocks and sections of the form, the Project Inspector is verifying that:
    a. Identified areas are determined to be in compliance with the DSA approved construction documents,
    b. Required testing and inspections are complete, and
    c. Required documentation has been received by the Project Inspector.

C. Project Posting of Forms DSA 152: The Project Inspector shall post the forms in his Job File and shall electronically upload the forms to DSA Box.
1. The information in the forms shall always be current. Each time the form is updated, a new electronic posting is required such that the electronically posted form is always kept current.
2. The Project Inspector shall:
    a. Immediately, upon request, make the form available for review by any parties involved in the construction.
    b. Include a current copy of the forms any time a Verified Report (form DSA 6-PI) is submitted.
    c. Upon request, provide a current copy of the forms to DSA, the Owner, or the Architect.

D. Duties of the Inspector of Record: The Inspector shall provide notifications to DSA, Inspector's Semi-monthly Reports, deviation notices, record of communications to the Architect and other responsible design professionals, report the following communications during the course of a construction project which include:
    a. Notifications to DSA: Start of work, minimum 48 hours prior to completion of foundation trenches, minimum 48 hours prior to first concrete placement, and when work is suspended for more than one month.
    b. Semi-monthly Reports: Make semi-monthly reports (on the 1st and 16th of every month) on the progress of construction, on the form DSA 155 and submitted to the Architect and structural engineer, with a copy sent to DSA and the Owner.

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c. Deviation Notices: When the Inspector identifies deviations from the DSA approved plans and specifications, the Inspector shall verbally notify the Contractor. If the deviation is not immediately corrected, the Inspector shall promptly issue a written notice of deviation on form DSA 154 to the Contractor, with a copy sent to the Architect and DSA. The status and resolution of all deviations shall be documented on semi-monthly reports.
d. Record of Communications to the Architect and other Responsible Design Professionals: All uncertainties in the Inspector's or Contractor's comprehension of the documents shall be reported in writing to the Architect and other responsible design professionals.
e. Reporting for Projects with Work Stoppage: This may be required in cases where DSA issues a Stop Work Order, Order to Comply or a request for Owner to stop work.
f. Verified Reports: Submit verified reports on form DSA 6-PI directly to DSA, with copies to the Architect, other responsible design professionals, and the Owner upon any of the following:
    1) Work on the project is suspended for a period of more than one-month.
    2) The services of the Inspector are terminated for any reason prior to completion of the project and such termination is not a result of work stoppage.
    3) DSA requests a verified report.
    4) At the time of occupancy of any building involved in a project prior to completion of the entire DSA approved scope of work.
    5) The entire project is substantially complete. DSA considers the project to be complete when the construction is sufficiently complete in accordance with the DSA approved construction documents so that the Owner can occupy or utilize the project for its intended use, as determined by the Owner and the Architect.

D. Duties of the Laboratory of Record:
1. Meet with the project inspector, design professionals, and the Contractor as needed to mutually communicate and understand the testing and inspection program, and the methods of communication appropriate for the project.
2. Obtain a copy of the DSA approved construction documents from the Architect prior to the commencement of construction.
3. Obtain a copy of the DSA approved Statement of Structural Tests and Special Inspections (form DSA 103) from the Architect prior to the commencement of construction.
4. Report all project related activities to the project inspector. The Project Inspector is responsible for monitoring the work of the Laboratory of Record and Special Inspectors to ensure the testing and special inspection program is satisfactorily completed.
5. Provide material testing as identified in the DSA approved construction documents.
6. Submit test reports to the project inspector on the day the tests were performed for any tests performed on-site.
7. Submit material test reports in a timely manner such that construction is not delayed and not to exceed 14 days from the date the material tests were performed to DSA, the Architect, structural engineer, project inspector and the Owner.
8. Immediately submit reports of material tests not conforming to the requirements of the DSA approved construction documents to DSA, the Architect, structural engineer, project inspector and the Owner.
9. The Engineering Manager shall submit an interim Laboratory of Record Verified Report (form DSA 291) and the Geotechnical Engineer shall submit an interim Geotechnical Verified Report (form DSA 293) to DSA, the project inspector, Owner and the Architect upon any of the following events occurring:
    a. Within 14 days of the completion of the material testing/special inspection program.
    b. Work on the project is suspended for a period of more than one month.
    c. The services of the Laboratory of Record are terminated for any reason prior to completion of the project.
    d. DSA requests a verified report.
    e. The Engineering Manager shall submit an interim verified report (form DSA 291) and the Geotechnical Engineer shall submit form DSA 293 to DSA and a copy to the Project Inspector for

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each of the applicable sections of the form DSA 152, prior to the Project Inspector signing off that section of the project inspection card, if that section required material testing.

E. Duties of Special Inspectors Employed by the Laboratory of Record:
   1. Meet with the Project Inspector, Architect, and the Contractor as needed to mutually communicate and understand the testing and inspection program, and the methods of communication appropriate for the project.
   2. Report all project related activities to the Project Inspector. The Project Inspector is responsible for monitoring the work of the Laboratory of Record and special inspectors to ensure the testing and special inspection program is satisfactorily completed.
   3. Perform work under the supervision of the Engineering Manager for the Laboratory of Record.
   4. Perform inspections in conformance with the DSA approved construction documents, applicable codes and code reference standards.
   5. Prepare detailed daily inspection reports outlining the work inspected and provide the Project Inspector a copy of the reports on the same day the inspections were performed.
   6. Immediately submit reports of materials or work not conforming to the requirements of the DSA approved construction documents to DSA, the Architect, structural engineer, Project Inspector and the Owner.
   7. Submit daily special inspection reports in a timely manner such that construction is not delayed and not to exceed 14 days from the date the special inspections were performed to DSA, the Architect, structural engineer, Project Inspector and the Owner.
   8. The Engineering Manager for the Laboratory of Record shall submit verified report form DSA 291 to DSA, the Project Inspector, the Owner and the Architect.
   9. The reports are required to be submitted upon any of the following events occurring:
      a. Within 14 days of the completion of the special inspection work.
      b. Work on the project is suspended for a period of more than one month.
      c. The services of the special inspector are terminated for any reason prior to completion of the project.
      d. DSA requests a verified report.
      e. The Engineering Manager for the Laboratory of Record shall submit an interim verified report to DSA and a copy to the Project Inspector for each of the applicable sections of the form DSA 152, prior to the signing off that section of the project inspection card, if that section required special inspections.

F. Duties of Special Inspectors Not Employed by the Laboratory of Record:
   1. Meet with the Project Inspector, Laboratory of Record, the design professionals, and the Contractors as needed to mutually communicate and understand the testing and inspection program, and the methods of communication appropriate for the project.
   2. Report all project related activities to the Project Inspector. The Project Inspector is responsible for monitoring the work of the Laboratory of Record and special inspectors to ensure the testing and special inspection program is satisfactorily completed.
   3. Perform work under the direction of the Architect, as defined in Section 4-335(f)1.B of the 2025 California Administrative Code (Title 24, Part 1).
   4. Perform inspections in conformance with the DSA approved construction documents, applicable codes and code reference standards.
   5. Prepare detailed daily inspection reports outlining the work inspected and provide the Project Inspector a copy of the reports on the same day the inspections were performed.
   6. Immediately submit reports of materials or work not conforming to the requirements of the DSA approved construction documents to DSA, the Architect, structural engineer, Project Inspector and the Owner.

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7. Submit daily special inspection reports in a timely manner such that construction is not delayed and not to exceed 14 days from the date the special inspections were performed to submitted to DSA, the Architect, structural engineer, Project Inspector and the Owner.
8. Submit Special Inspection Verified Report forms DSA 292 to DSA, the project inspector, the Owner and the Architect upon any of the following events occurring:
    a. Within 14 days of the completion of the special inspection work.
    b. Work on the project is suspended for a period of more than one month.
    c. The services of the special inspector are terminated for any reason prior to completion of the project.
    d. DSA requests a verified report.
    e. Submit an interim Special Inspection Verified Report (form DSA 292) to DSA and a copy to the Project Inspector for each of the applicable sections of the form DSA 152, prior to the Project Inspector signing off that section of the project inspection card, if that section required special inspections.

G. Duties of the Architect:
1. Responsible to the Owner and to DSA to see that the completed work conforms in every material respect to the DSA approved construction documents.
2. Ensure the Project Inspector is approved by DSA for the project by submitting form DSA 5 PI to and obtaining approval from DSA prior to the start of construction, and prior to requesting issuance of form DSA 152.
3. Provide a copy of the DSA approved construction documents to the project inspector and Laboratory of Record prior to the commencement of construction.
4. Provide a copy of the DSA approved Statement of Structural Tests and Special Inspections (form DSA 103) to the Project Inspector and Laboratory of Record prior to the commencement of construction.
5. Provide general direction of the work of the Project Inspector.
6. Issue specific instructions to the testing facility and the special inspectors prior to start of construction.
7. Direct and monitor the work of special inspectors who are not provided by the Laboratory of Record, as defined in Section 4-335(f)1B of the 2025 California Administrative Code (Title 24, Part 1).
8. Notify DSA as to the disposition of materials noted on laboratory testing, and/or special inspection reports as not conforming to the DSA approved construction documents.
9. Respond to DSA Field Trip Notes (form DSA 135 or comparable) as necessary.
10. Provide observation of the construction and maintain such personal contact with the project as is necessary to assure themselves of compliance, in every material respect, with the DSA approved construction documents.
11. Submit Architect Verified Reports (form DSA 6-AE) to DSA and to the Project Inspector upon any of the following events occurring:
    a. The project is substantially complete. DSA considers the project to be complete when the construction is sufficiently complete in accordance with the DSA approved construction documents so that the Owner can occupy or utilize the project.
    b. Work on the project is suspended for a period of more than one month.
    c. The services of the Architect or engineer are terminated for any reason prior to completion of the project.
    d. DSA requests a verified report.
    e. The Architect or engineer shall submit an interim Architect Verified Report (form DSA 6-AE) to DSA and a copy to the Project Inspector for each of the applicable sections of the form DSA 152 prior to the Project Inspector signing off that section of the project inspection card.

H. Duties of the Other Responsible Design Professionals:
1. Responsible to the school board and to DSA to see that the completed work for which they are delegated responsibility conforms in every material respect to the DSA approved construction documents.
2. Provide observation of the construction and maintain such personal contact with the project as is

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necessary to assure themselves of compliance, in every material respect, with the DSA approved construction documents.

3. Submit an Architect/Engineer Verified Report (form DSA 6-AE) to the Architect, who in turn will submit to DSA and the project inspector, upon any of the following events occurring:
    a. The project is substantially complete. DSA considers the project to be complete when the construction is sufficiently complete in accordance with the DSA approved construction documents so that the Owner can occupy or utilize the project.
    b. Work on the project is suspended for a period of more than one month.
    c. The services of the Architect or engineer are terminated for any reason prior to completion of the project.
    d. DSA requests a verified report.
    e. The Architect shall submit to DSA and the Project Inspector an Interim Architect/Engineer Verified Report (form DSA 6-AE), signed by all Architects and engineers having delegated responsibility for each of the sections of the form DSA 152 applicable to the areas of delegated responsibility, prior to the Project Inspector signing that section off on the project inspection card.

I. Duties of Contractor:
1. The Contractor shall carefully study the DSA approved documents and shall plan a schedule of operations well ahead of time.
2. If at any time it is discovered that work is being done which is not in accordance with the DSA approved construction documents, the Contractor shall correct the work immediately.
3. Verify that DSA 152 forms were issued for the project prior to the commencement of construction.
4. Meet with the Architect, the Laboratory of Record and the Project Inspector to mutually communicate and understand the testing and inspection program, and the methods of communication appropriate for the project.
5. Notify the Project Inspector, in writing, of the commencement of construction of each and every aspect of the work at least 48 hours in advance by submitting form DSA 156, or other agreed upon written documents, to the Project Inspector.
6. Notify the Project Inspector of the completion of construction of each and every aspect of the work by submitting form DSA 156 (or other agreed upon written documents) to the Project Inspector.
7. Consider the relationship of the signed off blocks and sections of the form DSA 152 and the commencement of subsequent work.
    a. Until the Project Inspector has signed off applicable blocks and sections of the form DSA 152, the Contractor may be prohibited from proceeding with subsequent construction activities that cover up the unapproved work.
    b. Any subsequent construction activities, that cover up the unapproved work, will be subject to a "Stop Work Order" from DSA or the Owner, and are subject to removal and remediation if found to be in non-compliance with the DSA approved construction documents.
8. Submit the final Contractor Verified Reports (form DSA 6-C) to DSA and the Project Inspector upon any of the following events occurring:
    a. The project is substantially complete. DSA considers the project to be complete when the construction is sufficiently complete in accordance with the DSA approved construction documents so that the Owner can occupy or utilize the project.
    b. Work on the project is suspended for a period of more than one month.
    c. The services of the Contractor are terminated for any reason prior to the completion of the project.
    d. DSA requests a verified report.

J. Duties of the Owner:
1. Provide for competent, adequate and continuous construction inspections and material testing for the project by employing an appropriate DSA certified approved Project Inspector and Laboratory of Record.
2. Contractually provide for and ensure that the design team is fulfilling their code required duty to observe the construction by making periodic visits of reasonable frequency.

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3. Ensure that the Project Inspector is approved by DSA for the project by submitting form DSA 5 to and obtaining approval from DSA prior to the start of construction and prior to requesting issuance of project inspection cards (DSA 152 forms).
4. Ensure the Laboratory of Record is LEA approved and employed prior to the start of construction and prior to requesting issuance of project inspection cards (DSA 152 forms).
5. Ensure that the project inspection cards (DSA 152 forms) are issued prior to commencement of construction.
6. Submit Statement of Final Actual Project Cost (form DSA 168) to DSA when the project is substantially complete.

1.7 CONTRACTOR COOPERATION WITH PROJECT INSPECTOR AND DSA

A. The Inspector and DSA shall have access to the Work at all times and at all locations where the Work or parts of the Work is in progress. The Contractor shall provide facilities for such access to enable the Inspector and DSA to perform their functions properly and safely.

END OF SECTION 01 4320

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SECTION 01 4520 - TESTING AND SPECIAL INSPECTION SERVICES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes testing and inspection to be provided by the Owner and cooperation required from the Contractor with the Owner's selected testing agency and others responsible for testing and inspecting the Work. For detailed testing requirements, refer to the quality control requirements of the following sections:

1. Section 01 4320: DSA Construction Oversight.
2. Section 03 1510: Concrete expansion anchor testing.
3. Section 03 3000: Concrete testing and inspection.
4. Section 05 3000: Metal deck inspection.
5. Section 05 5000: Metal fabrications testing and inspection.
6. Section 06 1100: Rough Carpentry.
7. Section 31 2000: Soils inspection and testing, import soil toxic testing.

B. Testing may be required per the Specification Sections noted above that is not specifically noted on Form DSA-103, Statement of Structural Tests and Special Inspections.

C. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
1. Section 01 4320: DSA construction oversight.

D. Work Not Included:
1. Selection of testing laboratory: The Owner will select a prequalified independent testing laboratory.
2. Payment for initial testing: The Owner will pay all services of the DSA approved testing laboratory as further described in Part 2 of this Section.

1.2 SUBMITTALS

A. Test Reports:
1. The testing laboratory will provide test and inspection reports for all testing and inspection required by this Section and the Division of the State Architect in accordance with DSA Procedure 13-1.
2. One copy of all test and inspection reports shall be forwarded by the testing laboratory to DSA, the Owner, the Architect, the Engineer, the Inspector, and the Contractor.
3. Reports shall include all tests made regardless of whether such tests indicate that the material is satisfactory or unsatisfactory.
4. Samples taken but not tested shall also be reported.
5. Reports shall indicate that the material or materials were sampled and tested in accordance with the requirements of Title 24, California Code of Regulations, and the Contract Documents.
6. Reports shall indicate the specified design strength and state definitely whether or not the material or materials tested comply with the requirements.

B. Contractor's Statement of Responsibility: In accordance with CBC Section 1704A.4, Contractor shall submit a

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statement of responsibility to the Architect, the Owner, and DSA prior to the commencement of work of the main wind or seismic force resisting systems or component. Statement of responsibility shall contain acknowledgment of awareness of the special inspection requirements contained in the statement of special inspections.

C. Verified Reports: The testing laboratory will provide interim and final verified reports in accordance with Section 01 4320 and DSA Procedure PR 13-1.

1.3 QUALITY ASSURANCE

A. The Owner will select an independent testing laboratory to conduct tests. Testing laboratory shall be approved by the Architect, Structural Engineer, and the Division of the State Architect.

B. Selection of material required for testing shall be by the laboratory or the Owner's representative and not by the Contractor.

C. Testing, when required, will be in accordance with all pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials.

D. Division of the State Architect Testing & Inspection: At a minimum, the testing required for the project is indicated in the Form DSA-103, Statement of Structural Tests and Special Inspections attached at the end of this Section.
   1. Where no testing requirements are described, but the Owner or DSA decides that testing is required, the Owner or DSA may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be made as described in this Section.
   2. Testing may be required by other Specification Sections that is not specifically noted on Form DSA-103, Statement of Structural Tests and Special Inspections.

1.4 MATERIALS, TESTING, AND INSPECTION STANDARDS

A. Comply with the California Building Code, 2025 Edition.

B. Concrete - Section 03 3000:
   1. Material Standards:
      a. Portland cement: CBC Section 1903A.1, ACI 318, Table 26.4.1.1.1(a).
      b. Fly ash: ACI 318, Table 26.4.1.1.1(a).
      c. Concrete aggregates: CBC Section 1903A.5; ACI 318, Section 26.4.1.2.1(a)(1).
   2. Material Tests:
      a. Reinforcing bar test: CBC Section 1910A.2.
      b. Waiver of reinforcing bar testing: CBC Section 1910A.2.
      c. Concrete strength: ACI 318, Section 26.12.
      d. Drilled expansion / epoxy bolt: CBC Section 1910A.5.
      e. Composite construction cores: CBC Section 1910A.4.
   3. Special Inspections:
      a. Job site inspection: CBC Section 1704A.3, Table 1705A.3.
      b. Batch plant inspection: CBC Section 1705A.3.3.
      c. Waiver of batch plant inspection: CBC Section 1705A.3.3.1.
      d. Post-installed anchors: CBC Table 1705A.3, Type 4, Section 1910A.5.

C. Metal Decking - Section 05 3000:
   1. Special Inspection: CBC Table 1705A.2.2.

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D. Wood - Section 06 1100:
   1. Material Standards:
      a. Sawn Lumber Material Standards: CBC Section 2303.1.1.
      b. Plywood Material Standards: CBC Section 2303.1.5.
      c. Structural Composite Lumber Material Standards: CBC Sections 2303.1.4 and 2303.1.3.1.
   2. Prefabricated (off-site built) wall framing.
      a. Testing and Inspection: Refer to Section 06 1100.

E. Earth Fill, Foundations, and Excavations - Section 31 2000:
   1. Special Inspection:
      a. Fill and Compaction: CBC Section 1705A.6 and Table 1705A.6.
      b. Pier Foundations: CBC Section 1704A.8.

F. Toxic Testing of Import Fill Material - Section 31 2000:
   1. Testing and Inspection: Refer to Section 31 2000.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Promptly process and distribute required copies of test reports and related instructions to assure necessary re-testing and replacement of materials with the least possible delay in progress of the Work.

PART 2 - PRODUCTS

2.1 PAYMENT FOR TESTING

A. Initial Testing: The Owner will pay for services requested by the Owner.

B. Retesting: When initial tests indicate non-compliance with the Contract Documents, subsequent retesting occasioned by the non-compliance shall be performed by the same testing agency and the costs thereof will be paid by the Contractor.

2.2 CONTRACTOR'S CONVENIENCE TESTING

A. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

2.3 OWNER’S INSPECTOR

A. The Owner shall employ a DSA approved Inspector in accordance with the requirements of the California Code of Regulations, Title 24. The Inspector’s duties are specifically defined in Title 24, Part 1, Section 4-342.
   1. Refer to Section 01 4320 - DSA Construction Oversight.

B. The work of construction in all stages of progress shall be subject to the personal continuous inspection of the Inspector. The Inspector shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep the Inspector fully informed respecting the progress and manner of the work and character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this Contract.

PART 3 - EXECUTION

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3.1 COOPERATION WITH TESTING LABORATORY

A. Representatives of the Owner and the testing laboratory shall have access to the Work at all times and at all locations where the Work or parts of the Work is in progress. The Contractor shall facilities for such access to enable the laboratory to perform its functions properly and safely.

3.2 TAKING SPECIMENS

A. Test specimens and prisms required for concrete, grout and mortar shall be taken by the testing laboratory and delivered directly to the testing laboratory as required by the California Building Code, 2025 Edition.

B. The testing laboratory shall be responsible for testing the samples.

C. Miscellaneous materials to be tested shall be tagged by the Project Inspector and delivered to the testing laboratory for testing. The testing laboratory shall provide specimen containers for the Project Inspector for the required tests.

3.3 SCHEDULES FOR TESTING

A. Establishing Schedule:
1. The Contractor shall notify the Project Inspector a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents, which must by terms of the Contract be tested, in order that the Inspector may arrange for testing of the material at the source of supply.
2. The Contractor shall provide time within the construction schedule required for the laboratory to perform its tests and to issue each of its findings.
3. Contractor shall coordinate times for testing of materials and/or installations with the testing laboratory not less than 48 hours prior to the need for testing.

B. Revising Schedule: When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.

C. Adherence to Schedule: When the testing laboratory is ready to test according to the established schedule, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back charged to the Contractor and shall not be borne by the Owner.

D. Tests and Inspections Required:
1. Refer to attached Form DSA 103.
2. Testing may be required by other Specification Sections that is not specifically noted on Form DSA-103, Statement of Structural Tests and Special Inspections.

3.4 UNTESTED MATERIALS

A. Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed any required testing and inspection, or prior to receipt of notice from the Architect that testing and inspection will not be required, shall not be incorporated into the Work.

B. If such non-inspected and non-tested material is incorporated into the project, it shall be removed at the Contractor’s expense and no consideration will be given for delays or additional cost caused by this action.

END OF SECTION 01 4520

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SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide construction facilities and temporary controls needed for the Work including, but not necessarily limited to:
   1. Temporary utilities such as heat, water, electricity, and telephone;
   2. Field offices;
   3. Sanitary facilities;
   4. Enclosures such as tarpaulins, barricades, safety devices, and canopies;
   5. Temporary fencing of the construction site and/or buildings as required to secure the project;
   6. Temporary protect of new and existing work;
   7. Temporary protection of existing buildings and site.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work is not part of this Section.
   3. Permanent installation and hookup of the various utility lines are described in other Sections.

1.2 QUALITY ASSURANCE

A. Comply with governing regulations and rules/recommendations of utility companies and governmental agencies having jurisdiction.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

PART 2 - PRODUCTS

2.1 TEMPORARY UTILITIES

A. Water:
   1. Provide necessary temporary piping and water supply and, upon completion of the Work, remove such temporary facilities.
   2. Provide and pay for water used in construction.

   3. Provide fire hydrants in working order and approved by the local fire agency having jurisdiction and fire access roads as indicated prior to delivering combustible materials to the job site.

B. Electricity:
   1. Provide all necessary temporary poles and wiring and, upon completion of the Work, remove such temporary facility.
   2. Provide area distribution boxes so located that the individual trades may furnish and use 100 ft maximum length extension cords to obtain power and lighting at points where needed for work, inspection, and

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safety.
3. Provide lighting as needed to permit safe and reasonable lighted working conditions.
4. Provide and pay for electricity used in construction.

C. Provide for and maintain safety during construction per Chapter 33 of the 2025 California Fire Code and DSA Bulletin 24-05. Within 7 calendar days of the Notice of Award, the Contractor shall meet with the Owner, develop a Site Safety Plan (SSP) and submit the SSP in .pdf format to the Architect who will submit the SSP to DSA for review. Additional contract time will not be granted for failure of DSA to approve the Contractor's plan. At a minimum, the SSP shall include the following information required in CFC Section 3303.1.1:
1. Name and contact information of site safety director.
2. Documentation of training of the site safety director and fire watch personnel.
3. Procedures for reporting emergencies.
4. Fire department vehicle access routes.
5. Locations of fire protection equipment, including portable fire extinguishers, standpipes, fire department connections and fire hydrants.
6. Smoking and cooking policies, designated area to be used where approved, and signage locations in accordance with CFC Section 3305.8.
7. Location and safety considerations for temporary heating equipment.
8. Hot work (welding, roofing, etc.) plan.
9. Plans for control of combustible waste.
10. Locations and methods for storage and use of flammable and combustible liquids and other hazardous materials.
11. Provisions for site security.
12. Changes that affect this plan.
13. Other site specific information requested by the local fire authority (LFA).

D. Safeguards During Construction: Provide for and maintain safeguards during construction and/or alteration of a building per Chapter 33 of the 2025 California Building Code.

E. Heating: Provide and maintain heat necessary for proper conduct of operations and temperature conditions needed for the Work.

F. Ventilation: Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and prevent accumulation of dust, fumes, vapors, or gases.

G. Telephone/Fax:
1. Make necessary arrangements and pay costs for installation and operation of telephone, FAX, internet service and copier service in the Contractor's office at the site.

2.2 FIELD OFFICES AND SHEDS

A. Office Facilities:
1. Contractor's Office: Provide a field office (8' by 12' minimum size) and sheds adequate in size and accommodation for Contractor's offices, supply, and storage.
2. Secure portable or mobile buildings when used. Provide steps and landings at each doorway. Meet all applicable codes and regulations.
3. Remove all facilities when they are no longer needed, but only after approval of the Architect.

Delete paragraph below when the inspector is not provided with a field office.

4. Inspector's Office: Provide a private space within the field office (8' by 16' minimum size), or a separate

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job trailer with adequate heating and cooling, power, and telephone outlets for the Project Inspector and for holding project meetings.
a. Provide 30"x84" table and 8 chairs.
b. Provide windows (approximately 10% of floor area) oriented to the construction areas.
c. Provide plan table and stool for inspector.

B. Sanitary Facilities:
1. Provide temporary sanitary facilities in the quantity required for use by all personnel per local and state health and sanitary regulations.
2. Maintain in a sanitary condition at all times and in reasonable proximity of the work.

2.3 TEMPORARY ENCLOSURES

A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, lighting, and other temporary construction necessary for the safe and proper completion of the Work in compliance with pertinent safety and other regulations.

B. Provide and maintain suitable temporary sidewalks, closed passageways, fences, and other structures required by law so as not to obstruct or interfere with traffic in public streets, alley ways, or private right-of-way. Leave an unobstructed way along public and private places for pedestrians and vehicles.

C. Provide temporary partitions and ceilings as needed to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

2.4 TEMPORARY FENCING

A. Provide and maintain temporary fencing for the duration of construction to prevent unauthorized entry into construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Minimum fence height shall be 6'-0" high. Fence panels shall be stretched over 4-sided pipe frames.

C. Include fabric privacy screen at all temporary fencing. Install fabric tautly over chain-link or panel fencing, preventing sagging and billowing. Ensure fabric extends from top to bottom of the fence. Securely fasten fabric to posts, top rails, and bottom wires. Contractor to regularly inspect and repair or replace damaged fabric to maintain safety and appearance.
1. Material: Woven polyethylene (HDPE) mesh fabric with UV inhibitors.
a. Mesh Opening: Not to exceed 1/8 inch.
b. Color: Green or Black.
c. Strength: Minimum tensile strength of 100 lbs/inch (warp/fill) and 50 lbs/inch (tear).
2. Fasteners: UV-resistant zip ties (minimum 50 lb tensile strength) or locking plastic fasteners.
a. Application: Attach fabric to the fence frame at maximum 12-inch intervals both vertically and horizontally, ensuring tautness.

2.5 VEHICULAR ACCESS AND PARKING

A. Access the site as indicated on the Drawings, or as directed by the Owner.

B. Do not use existing parking areas for the Contractor's parking or storage of materials.

C. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on the

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site.

D. Construct and maintain temporary roads accessing public thoroughfares to serve construction area. Extend and relocate as the Work requires.

E. Provide and maintain access to fire hydrants, free of obstructions, with an all-weather hard surface able to support 50,000 pounds minimum fire apparatus. Fire hydrants shall be charged and accessible by local fire authorities prior to loading the site with combustible materials.

F. Employees vehicles not required for the direct construction of the Work shall be parked offsite unless otherwise authorized by the Owner.

2.6 DUST PROTECTION

A. Provide dust suppression measures, including watering of all graded or excavated material at least twice a day, stopping grading and excavation activities when the wind speed exceeds 20 mph for one hour, watering or covering all material transported off-site, and minimizing the area disturbed by grading and excavation activities.

B. Maintain adequate water and trucks to be used throughout the progress of the project to mitigate airborne dust. Maintain the site in a damp condition, not allowing excessive powdering of soil.

2.7 PROTECTION

A. Landscaping: Protect all existing trees, shrubs, lawns, and landscape work from damage, providing guards and coverings. Maintain by irrigation any existing trees, shrubs, lawns, and landscape work though-out the Contract which are within the Contractor's temporary fencing. Damaged landscaping shall be repaired or replaced at the Contractor's expense.

B. Public and Private Streets, Curbs, and Walks:
   1. Protect all existing streets, curbs, walks, and other street improvements and immediately make all necessary repairs for damage occurring thereto during the course of the Work at the Contractor's expense.
   2. Keep all public and private streets and ways clean of debris, spilled materials and products, and wet and dry earth at all times and clean at the end of each working day. Clean wet earth from vehicles prior to their leaving the site.

C. Weather: Provide protection at all times against weather--rain, winds, storms, frost, or heat--so as to maintain all work, materials, apparatus, and fixtures free from injury or damage. At the end of the day's work, cover all work likely to be damaged.
   1. Water Protection: Protect excavations, trenches, and/or building from damage from rain water, spring water, ground water, backing up of drains or sewers, and all other water at all times. Provide pumps and equipment and enclosure necessary to provide this protection.
   2. Drainage: Construct and maintain all necessary temporary drainage and do all pumping necessary to keep excavations free of water.
   3. Cold Weather: During cold weather, protect all work from damage.
   4. Snow and Ice: Remove all snow and ice as may be required for proper protection and/or prosecution of the Work.

D. Installed Roofing Materials: Provide means for protection of roofing materials during construction activities. Provide a minimum of 3/4" plywood as protection for storage or materials, walking areas, and working areas. Protect from solvents, oils, or other materials harmful to the installed roofing material.

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E. Existing Utilities and Services: Maintain in operation through-out the Contract all existing utilities and services serving the existing facilities occupied by the Owner or by others.

F. Existing Structures and Improvements: The Contractor shall be responsible for all existing structures and improvements within the work area, and shall provide adequate protection. Any existing structure or improvement damaged during construction shall be repaired or replaced with materials, fixtures, or equipment of the same kind, quality, and size. Any materials, and/or equipment temporarily removed for protection and not damaged, shall be reinstalled.

G. Adjacent Property: Provide necessary protection for adjacent property and the lateral support therefor in conformance with the 2025 California Building Code.

2.8 SECURITY

A. The Contractor shall be responsible for security and protection of his equipment and the site-stored and installed products whether paid for by the Owner or not, until the Owner accepts the Project.

B. On-site security lighting shall be hooded and adjusted to reduce or eliminate illumination of surrounding properties and roadways.

2.9 DEBRIS CONTROL

A. Keep site clean and orderly in appearance at all times. Do not allow debris to accumulate over the site.

B. Collect debris daily and store in a central location or container. Remove from the site monthly prior to review of payment request.

2.10 PROJECT SIGN

A. Provide a project sign bearing the project name and the names of the Owner, Architect, consulting engineers (structural, mechanical, electrical, and civil), and Contractor, company logos, and other information as directed by the Architect. Sign shall be 4’ x 8’ x 1/2”plywood minimum.
   1. Submit sign drawing for review and approval by the Architect.
   2. Place sign in a prominent location as directed by the Architect.
   3. Sign shall be in place prior to approval of first payment request.
   4. Maintain sign in place during construction; remove and dispose of sign after project acceptance.

PART 3 - EXECUTION

3.1 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.

B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

END OF SECTION 01 5000

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SECTION 01 5710 - EROSION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. In accordance with pertinent provisions of this Section, install erosion control straw mat, straw wattles, and/or straw bales as needed to meet the requirements of the construction shown in the Contract Documents.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 01 5725: Storm Water Pollution Prevention Plan.
3. Section 31 1000: Site clearing.
4. Section 33 4000: Storm drainage.

1.2 QUALITY ASSURANCE

A. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

B. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the geotechnical engineer.

C. Install erosion control materials prior to expected rainfall and maintain throughout the construction period.

D. Comply with storm water pollution prevention plan.

1.3 SLOPE PROTECTION

A. Minor Slopes: Provide continuous straw mat protection over all soils disturbed by construction operations. Minor slopes shall be slope with finish grade less than 10 horizontal to 1 vertical, up to 6.5 horizontal to 1 vertical.

B. Major Slopes: Provide continuous straw mat protection plus horizontal trench with continuous straw wattles at 4' on center over all soils disturbed by construction operations. Major slopes shall be slope with finish grade equal to or greater than 6.5 horizontal to 1 vertical.

1.4 EXISTING UTILITIES

A. Field verify the location of all existing underground utilities prior to beginning any earthwork. Work around and protect all existing utilities during the course of the Work.

B. Where existing utilities are indicated on the drawings, extreme care shall be exercised in excavating near these utilities to avoid damage, and the Contractor will be held responsible for any damage caused by construction operations.

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PART 2 - PRODUCTS

2.1 EROSION CONTROL MATTING

A. Erosion control matting shall be straw blanket of 100% agricultural straw fiber matrix with a functional longevity of 6 months or greater. Evenly distribute straw fiber over the entire area of the mat. The blanket shall be covered on the top and bottom with a lightweight photodegradable polypropylene net with mesh size of approximately ½" by ½". Sew blanket together on 1.5" centers with degradable thread.

B. Acceptable Products:
1. North American Green, S150 straw erosion control blanket.
2. Cascade Geotechnical Inc., S-31 LD straw erosion control blanket.
3. Erosion Control Systems, ProGuard SS straw erosion control blanket.
4. Other equal product approved by the Architect.

2.2 STRAW WATTLES

A. Straw wattles are intended to capture and keep sediment on the slopes. Wattles shall be manufactured from 100% agricultural rice straw and wrapped in tubular black plastic netting or hemp. They are approximately 8" in diameter or larger by 25'-30' in length.

B. Acceptable Products:
1. California Straw Works,
2. Other equal product approved by the Architect

2.3 STRAW BALES

A. Provide Straw Bales continuously around all drainage inlets and maintain them to prevent silt build-up in storm drainage pipe. Clean storm drain pipes prior to acceptance of the project and verify there are no obstructions.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 EROSION CONTROL MATTING

A. Provide straw bales as required for loose spreading straw over native disturbed soil during grading operations and foundation and stem wall construction. Fine grade soil as soon after floor and wall framing is complete but before anticipated rainfall.

B. Install erosion control matting at the top of the slope by anchoring the mat into an earthen trench and anchor as recommended by the manufacturer.

C. Roll mats downhill and then horizontally with laps and staples as recommended by the manufacturer.

3.3 STRAW WATTLES

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A. Prepare slope with Erosion Control Matting prior to laying the wattling material.

B. Dig and smooth trenches across the slope on contour, to place rolls. Provide trench depth as recommended by the manufacturer, but not less than ½ the diameter of the roll.

C. Trenches shall be placed 4' on center and perpendicular to water flow.

D. Anchor wattles in place with stakes driven and spaced as recommended by manufacturer.

3.4 FIELD QUALITY CONTROL

A. Inspect the erosion control blanket and wattles immediately following the first significant storm. Make sure all rolls are in full contact with soils.

B. Repair any gullys or washouts immediately.

C. Provide gravel or river rock in areas of excessive erosion acceptable to the Architect and at no additional cost to the Owner.

END OF SECTION 01 5710

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SECTION 01 5725 - STORM WATER POLLUTION PREVENTION PLAN

PART 1 - GENERAL

1.1 SUMMARY

A. The State Water Resources Control Board (SWRCB) regulates storm water discharges associated with construction and land disturbance activities. Certain projects are required to obtain permit coverage under California's Construction General Permit (GCP), Order No. 2009-0009-DWQ. A site-specific Storm Water Pollution Prevention Plan (SWPPP) is required to obtain permit coverage under the CGP.

B. Related Sections
1. Section 01 5710: Erosion Control

C. This project disturbs less than one acre, therefore permit coverage has not been obtained and a SWPPP is **NOT** required, however the Contractor shall comply with the applicable sections of the California Green Building Code.

1.2 REFERENCES

A. Section 5.106 of the California Green Building Code, latest edition

END OF SECTION 01 5725

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SECTION 01 6200 - PRODUCT OPTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes product options available to bidders and the Contractor.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 01 2500: Substitution procedures.
3. Section 01 3300: Submittal procedures.

1.2 PRODUCT OPTIONS

A. The Contract shall be based on standards of quality established in the Contract Documents.
1. In agreeing to the terms and conditions of the Contract, the Contractor has accepted a responsibility to verify that the specified products will be available and to place orders for all required materials in such a timely manner as is needed to meet his agreed construction schedule.
2. Neither the Owner nor the Architect has agreed to the substitution of materials or methods called for in the Contract Documents, except as they may specifically otherwise state in writing.

B. Colors: Provide finish selections indicated in the Finish Schedule.
1. Acceptable Manufacturers: The products and manufacturers specified in the Finish Schedule are for purposes of establishing color and quality. Refer to each Specification Section for additional manufacturers and Section 01 2500 for substitution requirements.
2. Manufacturer's Standard Colors and Finishes: Where the Finish Schedule specifies a manufacturer's standard color or finish, the Architect makes no guarantee that matching colors or finishes are available as other manufacturer's "standard colors" from the listing of acceptable manufacturers. The Contractor shall be responsible for providing colors matching those indicated on the Drawings.
3. Custom Colors: Where the Finish Schedule indicates a specific manufacturer's colors, other acceptable manufacturers shall provide matching custom colors where a standard color is not acceptable.

1.3 DELAYS

A. Delays in construction arising by virtue of the non-availability of a specified material due to late approval and/or ordering of materials will not be considered as justifying an extension of the agreed Time of Completion, or reason for change.

B. All additional time required by the Architect or his consultants in dealing with such delay will be charged to the Contractor at the rates described in section 01 7700 1.4.B.2.

C. Equal or better material replacements caused by delay in approvals and/or ordering may cost more than the original material specified. Increased costs shall be absorbed by the Contractor and not the Owner.

END OF SECTION 01 6200

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SECTION 01 6600 - STORAGE AND PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

B. **Materials not properly stored will not be paid for by the owner. Materials previously paid for but not properly stored at time of payment request will be deducted from the request.**

1.3 MANUFACTURERS' RECOMMENDATIONS

A. Except as otherwise approved by the Architect, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

1.4 PACKAGING

A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
1. Maintain packaged materials with seals unbroken and labels intact until time of use.
2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

B. The Architect may reject as noncomplying such material and products that do not bear identification satisfactory to the Architect as to manufacturer, grade, quality, and other pertinent information.

1.5 PROTECTION

A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.

B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

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1.6 REPAIRS AND REPLACEMENTS

A. In event of damage, promptly make replacements and repairs to the approval of the Architect and at no additional cost to the Owner. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify an extension in the Contract Time of Completion.

END OF SECTION 01 6600

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SECTION 01 7120 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide such field engineering, staking services, and required certifications as required for proper completion of the Work including, but not necessarily limited to establishing and maintaining lines and levels.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Additional requirements for field engineering also may be described in other Sections of these Specifications.
3. As described in the General Conditions, the Owner will furnish survey describing the physical characteristics, legal limitations, utility locations, and legal description of the site.

1.2 SUBMITTALS

A. Comply with pertinent provisions of Section 01 3300.

B. Submit the following:
1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.
2. Documentation verifying accuracy of field engineering work
3. Certification, signed by the Contractor's retained licensed land surveyor or civil engineer, certifying that Bottom of Excavations, Top of Slab Elevations and locations of improvements are in conformance with requirements of the Contract Documents.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.4 PROCEDURES

A. In addition to procedures directed by the Contractor for proper performance of the Contractor's responsibilities:
1. Locate and protect control points before starting work on the site.
2. Preserve permanent reference points during progress of the Work.
3. Do not change or relocate reference points or items of the Work without specific approval from the Architect.
4. Promptly advise the Architect when a reference point is lost or destroyed, or requires relocation because of other changes in the Work.
    a. Upon direction of the Architect, require the field engineer to replace reference stakes or markers.
    b. Locate such replacements according to the original survey control.

END OF SECTION 01 7120

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SECTION 01 7300 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section establishes administrative and supervisory requirements pertaining to project coordination and general installation provisions.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 COORDINATION

A. Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
   1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work.

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PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Inspection of Conditions: Require the installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

G. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement. Comply with manufacturer’s installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

F. Provide attachment and connection devices and methods necessary for securing Work. Allow for expansion and building movement.

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G. Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

H. Recheck measurements and dimensions prior to starting installation.

I. Install each component during weather conditions and project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

J. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

K. 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.

3.4 SITE CONDITIONS

A. Where existing utilities are indicated on the drawings, extreme care shall be exercised in excavating near these utilities to avoid damage, and the Contractor will be held responsible for any damage caused by construction operations.

B. Should utilities not indicated on the drawings be found during construction, the Contractor shall promptly notify the Architect for instructions as to further action. Failure to do so will make the Contractor liable for any damage arising from construction operations after discovery of these utilities.

3.5 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration until Notice of Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION 01 7300

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SECTION 01 7330 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work.

B. Provide boring, fitting, and patching of the Work, as specified, as indicated, and as needed to:
1. Make the several parts fit properly;
2. Install new work into existing construction.
3. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
4. Remove and replace work not conforming to requirements of the Contract Documents;
5. Remove and replace defective work; and
6. Remove samples of installed work for testing.

C. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

D. Special Requirements:
1. In addition to other requirements specified, upon the Architect's request uncover work to provide for inspection by the Architect of covered work, and remove samples of installed materials for testing.
2. Prior to cutting, notching, or boring of any structural elements, including bearing/shear walls, footings, beams, etc., not specifically detailed in the drawings, obtain approval from the Architect and DSA prior to commencement of work.
3. Do not cut or alter work performed under separate contracts without the Architect's written permission.
4. The Contractor shall provide all encroachment permits or others as required in the right-of-way of any adjacent jurisdiction.

1.2 SUBMITTALS

A. Request for Architect's Consent:
1. Prior to cutting which effects structural safety, submit written request to the Architect for permission to proceed with cutting.
2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for cutting and patching, so notify the Architect and secure his written permission and the required Change Order prior to proceeding.

B. Notices to Architect:
1. Prior to cutting and patching performed pursuant to the Architect's instructions, submit cost estimate to the Architect. Secure the Architect's approval of cost estimates and type of reimbursement before proceeding with cutting and patching.
2. Submit written notice to the Architect designating the time the Work will be uncovered, to provide for the Architect's observation.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

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PART 2 - PRODUCTS

2.1 MATERIALS

A. For replacement of items removed, use materials complying with pertinent Sections of these Specifications.

2.2 PAYMENT FOR COSTS

A. The Owner will reimburse the Contractor for cutting and patching performed pursuant to a written Change Order, after claim for such reimbursement is submitted by the Contractor. Perform other cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

B. For uncovering work and replacement of work for inspection by the Architect:
   1. If work is not compliant, Contractor shall pay all costs,
   2. If work is compliant, Owner shall pay for removal and replacement as a Change Order.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection: Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching, and backfilling. After uncovering the work, inspect conditions affecting installation of new work.

B. Discrepancies: If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions. Do not proceed until unsatisfactory conditions are corrected.

3.2 BORING

A. Provide mechanical boring equipment to bore under existing asphalt, concrete, or other surfaces or objects as noted on the drawings. All borings shall be a minimum of 24" under the substrate material unless otherwise authorized by the Architect.

B. Holes shall be bored not to exceed 1" larger diameter than the largest component remaining in the excavation.

C. **Water or air pressure jetting** are not permitted, unless they comply with the following requirements.
   1. All surfaces of the hole can be visually inspected with 6' maximum length and,
   2. all objects shall be supported continuously to prevent sagging and,
   3. the hole shall be filled with compacted damp sand and inspected by the Project Inspector or Materials Testing lab technician.

3.3 PREPARATION PRIOR TO CUTTING

A. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

B. Provide protection for other portions of the work which may be affected.

C. Provide protection from the elements when needed.

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3.4 CUTTING AND REMOVAL - GENERAL

A. Perform required excavating and backfilling as required under pertinent other Sections of these Specifications.
   1. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new work.
   2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.

B. Remove existing work indicated to be removed, or as needed for installation of new work.

3.5 MATCHING AND PATCHING

A. Where items are removed from existing walls, ceilings, floors, partitions, or roofs to remain, repair walls, ceilings, floors, partitions, roofs, etc., disturbed by removal.

B. Where existing construction is removed, repair abutting walls, ceilings, floors, partitions, or roofs disturbed by removal.

C. Where existing construction is cut or otherwise disturbed to permit installation of new work, match and patch existing disturbed construction.

D. Use methods similar in appearance, and equal in quality to areas and surfaces being repaired.

E. Remove and replace areas, surfaces, or items which cannot be satisfactorily matched or patched.

END OF SECTION 01 7330

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SECTION 01 7400 - CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Conduct daily inspection, more often if necessary, to verify that requirements for cleanliness are being met.

B. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction, including the SWPPP requirements.

C. Contractor shall include the costs of cleaning and trash disposal in his/her bid designate it in the Schedule of Values.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

B. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General:
1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.
4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

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3.2 FINAL CLEANING

A. "Clean," for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.

C. Site: Unless otherwise specifically directed by the Architect, broom clean paved areas on the site and public paved areas adjacent to the site. Completely remove resultant debris.

D. Structures:
   1. Exterior:
      a. Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter visible from 5'.
      b. Remove all traces of splashed materials from adjacent surfaces.
      c. If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the structure.
      d. In the event of stubborn stains not removable with water, the Architect may require light sandblasting or other cleaning at no additional cost to the Owner.
   2. Interior:
      a. Visually inspect interior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter visible from 5'.
      b. Remove all traces of splashed material from adjacent surfaces.
      c. Remove paint droppings, spots, stains, and dirt from finished surfaces.
   3. Glass: Clean inside and outside.
   4. Polished surfaces: Apply polish to surfaces requiring routine application of buffed polish as recommended by the manufacturer of the material.

E. Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean Work.

3.3 CLEANING DURING OWNER'S OCCUPANCY

A. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be as determined by the Architect in accordance with the General Conditions of the Contract.

END OF SECTION 01 7400

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SECTION 01 7425 - CONSTRUCTION WASTE MANAGEMENT AND CONTROL

PART 1 - GENERAL

1.1 SUMMARY:

A. This section specifies diversion of construction and demolition waste from the landfill. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 01 3110: Additional requirements for project meetings and reports.
3. Section 01 3300: Additional requirements for submittal procedures and project documentation.
4. Section 01 5000: Additional requirements related to trash and waste collection and removal facilities and services.
5. Section 01 6600: Waste prevention requirements related to delivery, storage, and handling.
6. Section 01 7330: Trash/waste prevention procedures related to cutting and patching, installation, protection, and cleaning.
7. Section 31 1000: Handling and disposal of excavated soils and land clearing debris.

C. The following sources may be useful in developing the Waste Management Plan:
1. County engineering or building departments.
2. Sample forms found in “A Guide to the California Green Building Standards Code (Nonresidential)” located at www.bsc.ca.gov/Home/CALGreen.aspx may be used to assist in documenting compliance with the waste management plan.
3. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

1.2 SCOPE OF CONSTRUCTION WASTE MANAGEMENT AND CONTROL

A. Intent: Construction waste management and control is intended to achieve the following specific objectives:
1. Generate the least amount of trash and waste possible.
2. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
3. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

B. Construction Waste Management Requirement: Recycle and/or salvage for reuse a minimum of **65 percent** of the nonhazardous construction and demolition waste in accordance with Option 1, 2 or 3 listed below; or meet a local construction and demolition waste management ordinance, whichever is more stringent.
1. Option 1 - Construction waste management plan. (Cal Green Code 5.408.1.1) Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, submit a construction waste management plan that:
a. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
b. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
c. Identifies diversion facilities where construction and demolition waste material collected will be taken.

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d. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

2. Option 2 - Waste Management Company. (Cal Green Code 5.408.1.2) Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.
3. Option 3 - Waste Stream Reduction Alternative. (Cal Green Code 5.408.1.3) The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65 percent minimum requirement as approved by the enforcing agency.
4. Documentation: Documentation shall be provided to the enforcing agency which demonstrates compliance with option 1, 2 or 3 above. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

C. Recycling Incentive programs are mandatory for this project; Contractor is responsible for implementation:
1. Any revenue or savings shall accrue to Contractor.
2. Any rebates and credits shall be applied for by Owner and shall accrue to Owner.

D. Owner may decide to pay for additional recycling, salvage, and/or reuse based on Landfill Alternatives Proposal specified below.

E. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
1. Aluminum and plastic beverage containers.
2. Corrugated cardboard.
3. Wood pallets.
4. Clean dimensional wood.
5. Excavated soils and land clearing debris, including brush, branches, logs, and stumps.
6. Concrete.
7. Concrete masonry units.
8. Asphalt paving.
9. Metals, including packaging banding, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
10. Glass.
11. Gypsum board and plaster.
12. Plastic buckets.
13. Carpet, carpet cushion, carpet tile, and carpet remnants.
14. Asphalt roofing shingles.
15. Paint.
16. Plastic sheeting.
17. Windows, doors, and door hardware.
18. Plumbing fixtures.
19. Mechanical and electrical equipment.
20. Fluorescent lamps (light bulbs).
21. Acoustical ceiling tile and panels.

F. Methods of trash/waste disposal that are not acceptable are:
1. Burning on the project site.
2. Burying on the project site.
3. Dumping or burying on other property, public or private.
4. Other Illegal dumping or burying.
5. Incineration either on- or off-site.

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G. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.3 DEFINITIONS:

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and nibble resulting from construction, remodeling, repair and demolition operations. Excavated soils and land clearing debris and hazardous or toxic waste are excluded from construction and demolition waste.

C. Hazardous: Exhibiting the characteristics of hazardous substances (i.e., ignitibility, corrosivity, toxicity or reactivity).

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period or exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life In Its Intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.4 SUBMITTALS:

A. General: Submit in accordance with Section 01 3300.

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B. Landfill Alternatives Proposal: Within 10 calendar days after receipt of Notice to Proceed, or prior to any trash or waste removal, whichever occurs sooner, submit a projection of trash/waste that will require disposal and alternatives to landfilling, with net costs.
   1. Submit to Architect for Owner's review and approval.
   2. If Owner wishes to implement any cost alternatives, the Contract Sum will be adjusted as specified elsewhere.
   3. Include an analysis of trash/waste to be generated and landfill options as specified for Waste Management Plan described below.
   4. Describe as many alternatives to landfilling as possible:
      a. List each material proposed to be salvaged, reused, or recycled.
      b. List the proposed local market for each material.
      c. State the estimated net cost resulting from each alternative, after subtracting revenue from sale of recycled or salvaged materials and landfill tipping tees saved due to diversion of materials from the landfill.
   5. Provide alternatives to landfilling for at least the materials that cannot be recycled, salvaged, or reused as stated under Waste Management Requirements above.
   6. Once Owner has determined which of the landfill alternatives addressed in the Proposal above ore acceptable, prepare and submit Waste Management Plan; submit within 10 calendar days after notification by Architect.

D. Submit Waste Management Plan within 10 calendar days after receipt of Notice to Proceed, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to land filling.

E. Waste Management Plan: Include the following information:
   1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
      a. Identify construction waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
   2. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
      a. Indicate if construction waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
      b. Indicate how the amount of construction waste materials diverted shall be calculated; by weight or volume, but not both.
      c. Indicate deconstruction, salvage, and recycling strategies and processes.
   3. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
   4. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
      a. List each material proposed to be salvaged, reused, or recycled.
      b. List the local market for each material.
      c. State the estimated net cost versus landfill disposal.
   5. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
   6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.
   7. Recycling Incentives: Describe procedures required to obtain credits, rebates, or similar incentives.

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F. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
   1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
   2. Submit Report on a form acceptable to Owner.
   3. Landfill Disposal: Include the following information:
      a. Identification of material.
      b. Amount, in tons or cubic yards of trash/waste material from the project disposed of in landfills.
      c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
      d. Include manifests, weight tickets, receipts, and Invoices as evidence of quantity and cost.
   4. Incinerator Disposal: Include the following information:
      a. Identification of material.
      b. Amount, in tons or cubic yards of trash/waste material from the project delivered to Incinerators.
      c. State the identity of Incinerators, total amount of fees paid to Incinerator, and total disposal cost.
      d. Include manifests weight tickets, receipts, and invoices as evidence of quantity and cost.
   5. Recycled and Salvaged Materials: Include the following Information for each:
      a. Identification of material, including those retrieved by installer for use on other projects.
      b. Amount in tons or cubic yards, date removed from the project site, and receiving party.
      c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
      e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
   6. Material Reused on Project: include the following information for each:
      a. Identification of material and how it was used in the project.
      b. Amount, in tons or cubic yards.
      c. Include weight tickets as evidence of quantity.
   7. Other Disposal Methods: include information similar to that described above, as appropriate to disposal method.

G. Recycling Incentive Programs:
   1. Where revenue accrues to Contractor, submit copies of documentation required to qualify for incentive.
   2. Where revenue accrues to Owner, submit any additional documentation required by Owner in addition to information provided in periodic Waste Disposal Report.

PART 2 - PRODUCTS

2.1 PRODUCT SUBSTITUTIONS:

A. See Section 01 6200 - Product Requirements for substitution submission procedures.

B. For each proposed product substitution, submit the following information in addition to requirements specified in Section 01 6200:
   1. Relative amount of waste produced, compared to specified product.
   2. Cost savings on waste disposal, compared to specified product, to be deducted from the Contract Sum.
   3. Proposed disposal method for waste product.
   4. Markets for recycled waste product.

PART 3 - EXECUTION

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3.2 WASTE MANAGEMENT PLAN IMPLEMENTATION:

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings; particularly at:
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.
   4. Job safety meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal for use by all contractors and installers.
   1. As a minimum, provide:
      a. Separate area for storage of materials to be reused on site, such as wood cut-offs for blocking.
      b. Separate dumpsters for each category of recyclable.
      c. Recycling bins at worker lunch area.
   2. Provide containers as required.
   3. Provide temporary enclosures around piles of separated materials to be recycled or salvaged.
   4. Provide materials for barriers and enclosures that ore nonhazardous, recyclable, or reusable to the maximum extent possible; reuse project construction waste materials if possible.
   5. Locate enclosures out of the way of construction traffic.
   6. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   7. If an enclosed area is not provided, clearly lay out and label a specific area on-site.
   8. Keep recycling and trash/waste bin areas neat and clean and dearly marked In order to avoid contamination of materials.

F. Excavated Soils and Land Clearing Debris: 100% of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing shall reused or recycled, except for reuse, either on site or off site of vegetation or soil contaminated by disease or pest infestation.
   1. For a phased project, such material may be stockpiled on site until the storage site is developed.
   2. If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material.
   3. See www.cdfa.ca.gov/exec/county/county_contacts.html.

G. Hazardous or Toxic Waste: Separate, store, and dispose of hazardous waste according to applicable regulations.

H. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility In order to prevent contamination of recyclable materials.

I. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

J. Salvage: Set aside, sort, and protect products to be salvaged for reuse oft-site.

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SECTION 01 7700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for an orderly and efficient transfer of the completed Work to the Owner.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 01 3300: Submittal procedures.
3. Section 01 4520: Payment procedures for retesting.
4. Section 01 7400: Final cleaning.
5. Section 01 7820: Operation and maintenance data.
6. Section 01 7840: Project record documents.
7. Certifications and Warranties as noted in each specification section.

1.2 QUALITY ASSURANCE

A. Prior to requesting inspection by the Architect, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Complete the following prior to requesting inspection for substantial completion.
1. Prepare and submit the list of items to be completed or corrected required by the General Conditions.
2. Closeout Submittals:
a. Prepare and submit an electronic submittal of each closeout submittals including, but not limited to, the following:
i. In-Service Certifications required by Divisions 1 through 33 of the specifications executed by the appropriate persons on form provided in this Section.
ii. Project Asbestos Certification executed by Contractor on form provided in this Section;
iii. Project record documents complying with the requirements of Section 01 7840;
iv. Project Warranty executed by the Contractor on form provided in this Section.
v. Special warranties as specified in Divisions 1 through 33 of the specifications.
vi. Maintenance agreements required by Divisions 1 through 33 of the specifications;
vii. Operation and maintenance manuals required by Divisions 1 through 33 of the specifications complying with the requirements of Section 01 7820;
viii. Manufacturer's recommended cleaning procedures required by Divisions 1 through 33;
ix. Certifications required by Divisions 1 through 33 of the specifications.
x. Test reports required by Divisions 1 through 33 of the specifications.
xi. Final versions of all: submittals, RFIs, bulletins, change order requests and change orders.
b. Upon the Architect’s acceptance of the Closeout Submittal, provide one complete hard copy in 3-ring binders, including “wet-signature” original documents for the Owner’s record.
3. Advise Owner of pending insurance change over requirements.
4. Obtain and submit releases from governmental agencies having jurisdiction enabling the Owner unrestricted use of the Work and access to service and utilities; include occupancy permits, operating certificates, and similar releases.
5. Deliver special tools, spare parts, extra materials, and similar items.

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6. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
7. Complete start-up testing and balancing of systems, and instruction and demonstration of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
8. Complete final clean-up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
9. Submit a list of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
10. In the presence of the Owner and the Inspector of Record, locate all utility devices required for control, manipulation, or shut-off of building and site utility systems including, but not limited to cleanouts, valves, dampers, valve boxes, pull boxes, handholes, manholes, etc., whether exposed, concealed, or in-ground.

B. Inspection Procedures:
1. Within 5 days of receipt of Contractor's list of items to be completed or corrected, the Architect will make an "initial inspection" and provide the Contractor with an additional list of discrepancies. When the Contractor corrects the items indicated by the Architect and any other, the Contractor shall notify the Architect for the Final Acceptance Inspection.
2. All closeout submittal items as listed in paragraph 1.3.A above shall be completed prior to Notice of Completion being submitted to the Owner for acceptance.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Prior to requesting final inspection for certification of final acceptance and final payment, prepare and submit the following:
1. Final application for payment with release of liens/stop notices and supporting documentation not previously submitted and accepted.
2. Updated final statement, accounting for final additional changes to the Contract Sum;
3. Final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
4. Final liquidated damages settlement statement, where applicable.
5. Payment by the Contractor of all backcharge items, including but not limited to utilities, materials retesting, and reinspections.
6. Contractor's final verified report, DSA-6C.
7. Contractor shall coordinate switch-over of utilities following Substantial Completion and approval of the Architect. Provide proof of payment for electricity, water, gas and other utilities that are a part of this contract.

B. Inspection Procedures:
1. Within 5 days of receipt of Contractor's written request for Final Acceptance Inspection, the Architect will make a "final inspection" to review the "initial inspection" list of discrepancies and identify any additional discrepancies discovered.
2. Reinspection: Should the Contractor not have completed the Work as required by the Contract Documents, not have completed the items identified on the list of discrepancies, or should the Architect reject portions of the Work, all further inspections, time expended, and reimbursable expenses incurred by the Architect, his representatives, or consultants for final acceptance will be considered additional services and will be charged at the following rates:
    a. Project Architect: $270/hr or $540.00 per inspection minimum.
    b. Architect's Representative: $220/hr or $440.00 per inspection minimum.
    c. Consultants: The direct cost to the Architect plus 10% or $500.00 per inspection minimum.
3. The Architect will bill Owner for additional services required by the Architect and/or consulting engineers for such additional inspections, time expended, and reimbursable expenses incurred, and Owner shall be reimbursed

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by deducting the same amount from the final payment.

4. Determination of necessity for such reinspections will be made by consultation between the Owner and the Architect.

END OF SECTION 01 7700

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MANGINI

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4320 West Mineral King Avenue
Visalia, California 93291
(559) 627-0530

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Specification Section No._____

IN-SERVICE CERTIFICATION

PROJECT:	**PROJECT NAME** Project Address	**DATE:**	
OWNER:		**PROJECT NO.:**	
ARCHITECT:	Mangini Associates Inc.	**DSA FILE NO.:**	
CONTRACTOR:		**DSA APPL. NO.:**	
INSPECTOR:			

IN-SERVICE CONDUCTED BY: _____

MATERIALS REVIEWED (Check applicable boxes)

☐ **RECORD DRAWINGS**	☐ **SAFETY PROCEDURES**	☐ **SHUT DOWN**
☐ **WARRANTIES**	☐ **CLEANING PROCEDURES**	☐ **CONTROLS MANIPULATION**
☐ **MAINTENANCE AGREEMENT**	☐ **IDENTIFICATION SYSTEMS**	☐ **EMERGENCY PROCEDURES**
☐ **OPERATION & MAINTENANCE MANUALS**	☐ **START-UP**	☐ **NOISE/VIBRATION ADJUSTMENT**
☐ **SPECIAL TOOLS AND PARTS**	☐ **CONTROL SEQUENCES**	☐ **EFFECTIVE ENERGY UTILIZATION**

ATTENDEES (Please print name and sign below)

1. DISTRICT FACILITIES REPRESENTATIVE _____

2. SITE REPRESENTATIVE _____

3. DISTRICT MAINTENANCE REPRESENTATIVES _____ (Plumbing) _____ (Mechanical)

_____ (Electrical) _____ (Grounds)

4. OTHERS PRESENT (FOR GENERAL CONTRACTOR, ETC.) _____ _____

_____ _____

MEETING DATE: _____ **TIME OF START:** _____ **TIME OF COMPLETION:** _____

I CERTIFY THAT THE ABOVE NAMED IN-SERVICE COVERED ALL ASPECTS OF THE SPECIALTY FOR WHICH IT WAS CONVENED.

Signature _____ **Date** _____

MANGINI

MANGINI ASSOCIATES INC.
4320 West Mineral King Avenue
Visalia, California 93291
(559) 627-0530

www.mangini.us

PROJECT ASBESTOS CERTIFICATION

PROJECT:	**PROJECT NAME** Project Address	**DATE:**
OWNER:		**PROJECT NO.:**
ARCHITECT:	Mangini Associates Inc.	**DSA FILE NO.:**
CONTRACTOR:		**DSA APPL. NO.:**
INSPECTOR:		

TO: _____

FROM: _____

SUBJECT: **Asbestos Containing Building Materials Letter**

I hereby certify that, to the best of my knowledge, the materials furnished and/or installed by

(General Contractor) _____

or its subcontractors on the (Name of Project) _____

located at (Street Address, City, State) _____

do not contain Asbestos Containing Building Materials.

_____
Date

_____
Contractor

_____
Address

_____

_____

_____
Telephone

_____
Signature of Contractor

_____
Title

MANGINI

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(559) 627-0530

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PROJECT WARRANTY

PROJECT:	**PROJECT NAME** Project Address	**DATE:**
OWNER:		**PROJECT NO.:**
ARCHITECT:	Mangini Associates Inc.	**DSA FILE NO.:**
CONTRACTOR:		**DSA APPL. NO.:**
INSPECTOR:		

_____ (Contractor) hereby warrants to the Owner that materials and equipment furnished under the Contract in the (Name of Project) _____
_____
are of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work is free from defects not inherent in the quality required or permitted, and that the Work conforms with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. This warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

If, within 1 year after the date of Substantial Completion of the Work or designated portion thereof, or by terms of an applicable special warranty required by the Contract Documents extending this time period, any of the Work is found to be not in accordance with the requirements of the Contract Documents or proves to be defective in materials or workmanship, the Contractor expressly agrees to correct it, without expense to the Owner, promptly after receipt of written notice from the Owner or his agent to do so unless the Owner has previously given the Contractor written acceptance of the condition. This period of 1 year shall be extended with respect to portions of the Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation of the Contractor to correct the Work shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

Nothing contained in this warranty shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of 1 year, or special extended time periods required by the Contract Documents, for correction of the Work as described above relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

In the event of the Contractor's failure to comply with the conditions of this warranty within 10 days after being notified in writing by the Owner or his agent, the Contractor hereby authorizes the Owner to proceed to have said defects repaired and made good at the Contractor's expense and the Contractor will honor and pay the costs and charges therefor upon demand.

The term "Work" means the construction and services required by the Contract Documents and includes all other labor, materials, equipment and services provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or part of the total construction performed under the Contract Documents.

_____ _____
Date Telephone

_____ _____
Contractor Signature of Contractor

_____ _____
Address Title
_____

_____

SECTION 01 7820 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding products incorporated into the Work, furnish and deliver the data described in this Section and in pertinent other Sections of these Specifications.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   2. Required contents of submittals also may be amplified in pertinent other Sections of these Specifications.

1.2 SUBMITTALS

A. Comply with pertinent provisions of Section 01 3300.

B. Submit an Electronic Submittal preliminary draft of the proposed Manual or Manuals to the Architect for review and comments.

C. Once the Architect has accepted the complete electronic submittal, submit one original hard copy set of binders to the Architect prior to the indoctrination of operation and maintenance personnel.

1.3 QUALITY ASSURANCE

A. In preparing data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the extent needed for communicating the essential data.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE MANUALS

A. Where instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

B. Preliminary Electronic Submittal:
   1. Comply with pertinent provisions of Section 01 3300.
   2. The submittal shall be one complete .pdf file consisting of all items described in Section 01 7700. Record Documents shall be separately, but similarly submitted in accordance with Section 01 7840.
   3. Minimum components:
      a. Neatly typewritten index near the front of the Manual, giving immediate information as to location within the Manual of all emergency information regarding the installation.
         i. Bookmark all .pdf files to match the Project Manual table of contents.
      b. Complete instructions regarding operation and maintenance of all equipment involved including lubrication, disassembly, and reassembly.
      c. Complete nomenclature of all parts of the equipment.

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d. Complete nomenclature and part number of all replaceable parts, name and address of nearest vendor, and all other data pertinent to procurement procedures.
e. All guarantees and warranties issued.
f. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.
g. Such other data as required in pertinent other Sections of these Specifications.

C. Final Hard Copy (Once electronic submittal is accepted):
1. Size: 8-1/2" x 11"
2. Paper: White bond, at least 20 lb weight
3. Text: Neatly written or printed
4. Drawings: 11" in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the Manual and provide a drawing pocket inside rear cover or bind in with text.
5. Flysheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
6. Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the Manual; 3-ring binders will be acceptable; all binding is subject to the Architect's approval.
7. Measurements: Provide all measurements in U.S. standard units such as feet-and-inches, lbs, and cfm; where items may be expected to be measured within ten years in accordance with metric formulae, provide additional measurements in the "International System of Units" (SI).

D. Provide front and back covers for each Manual, using durable material approved by the Architect, and clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

(name and address of Work)

(name of Contractor)

(general subject of this Manual)

(space for signature of)
(the Architect, and approval date)

PART 3 - EXECUTION

3.1 OPERATION AND MAINTENANCE MANUALS

A. Preliminary:
1. Prepare a preliminary electronic submittal of each proposed Manual.
2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
3. Secure the Architect's approval prior to proceeding.

B. Final: Complete the Manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.

C. Revisions:

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1. Following the indoctrination and instruction of operation and maintenance personnel, review all proposed revisions of the Manual with the Architect.
2. Following the indoctrination meeting, complete the "In-Service Certification" form and include it as part of the Operation and Maintenance Manual.
3. If the Contractor is required by the Architect to revise previously approved Manuals, compensation will be made as provided for under "Changes" in the General Conditions.

END OF SECTION 01 7820

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SECTION 01 7840 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Throughout progress of the Work, maintain an accurate record of changes in the Contract Documents, as described in Article 3.1 below and, upon completion of the Work, transfer the recorded changes to a set of Record Documents, as described in Article 3.2 below.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

1.2 SUBMITTALS

A. Comply with pertinent provisions of Section 01 3300.

B. The Architect's approval of the current status of Project Record Documents may be a prerequisite to the Architect's approval of requests for progress payment and request for final payment under the Contract.

C. Prior to submitting each request for progress payment, secure the Architect's approval of the current status of the Project Record Documents.

D. Prior to submitting request for final payment, submit the final Project Record Documents to the Architect and secure his approval.

1.3 QUALITY ASSURANCE

A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff as approved by the Architect.

B. Accuracy of Records:
1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.
2. Accuracy of records shall be such that future searches for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.

C. Make entries within 24 hours after receipt of information that the change has occurred.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means necessary to secure data to the Architect's approval.

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1. Such means shall include, if necessary in the opinion of the Architect, removal and replacement of concealing materials.
2. In such case, provide replacements to the standards originally required by the Contract Documents.

PART 2 - PRODUCTS

2.1 RECORD DOCUMENTS

A. Record Documents:
1. Job Set: Promptly following receipt of the Owner's Notice to Proceed, secure from Architect, at no charge to Contractor, one complete set of all Documents comprising the Contract, and post all addenda.
2. Post all requests for information, bulletins, and change orders as they occur.
3. Show all underground utility locations and routings by horizontal and vertical dimension.
   a. Record width of trenches in cases were multiple pipes or conduits are installed.
   b. Record the number and sizes of pipes and conduit where trench combines power, fire alarm, and communications.
4. Show all overhead utility locations and routings by horizontal and vertical dimension.
5. At a time nearing completion of the Work, submit the Job Set to the Architect for review.

B. Preliminary Record Documents Submittal:
1. Make an electronic PDF format color copy of the Job Set and submit to the Architect for review.
   a. Bookmark each sheet with sheet number and title to match the sheet index on the cover sheet of the drawings.

C. Final Record Documents:
1. Upon the Architect’s acceptance of the Job Set, make one complete copy of all sheets, including copies of the backs of sheets used to post record information, and including added sheets used to post record information. This copy shall be submitted to the Architect for distribution to the Owner.
2. Include an electronic PDF format color copy of the accepted Job Set.

PART 3 - EXECUTION

3.1 MAINTENANCE OF JOB SET

A. Immediately upon receipt of the job set described in Paragraph 2.1.A above, identify each of the Documents with the title, "RECORD DOCUMENTS - JOB SET", and post all addenda.

B. Preservation:
1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the Job Set to the approval of the Architect.
2. Do not use the Job Set for any purpose except entry of new data and for review by the Architect.
3. Maintain the Job Set at the site of Work as designated by the Architect.

C. Making Entries on Drawings:
1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
2. Date all entries.
3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
4. In the event of overlapping changes, use different colors for the overlapping changes.

D. Make entries in the pertinent other Documents as approved by the Architect.

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E. Conversion of Schematic Layouts:
   1. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, is shown schematically and is not intended to portray precise physical layout.
      a. Final physical arrangement is determined by the Contractor, subject to Architect's approval.
      b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
   2. Show on the Job Set, by dimension accurate to within one inch, the centerline of each run of items such as are described in subparagraph 3.1.E.1 above.
      a. Clearly identify the item by accurate note such as "cast iron drain", "galv. water", and the like.
      b. Show, by symbol or note, the vertical location of the item ("under slab", "in ceiling plenum", "exposed", and the like).
      c. Make all identification so descriptive that it may be related reliably to the Specifications.
   3. The Architect may waive the requirements for conversion of schematic layouts where, in the Architect's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Architect.

3.2 FINAL PROJECT RECORD DOCUMENTS

A. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.

B. Method of Showing Changes:
   1. Carefully record change data, coordinating the changes as required.
   2. Clearly indicate at each affected detail and other Drawings a full description of changes made during construction, and actual location of underground and overhead utility locations and routes.
   3. Call attention to each entry by drawing a "cloud" around the area or areas affected.
   4. Make changes neatly, consistently, and with the proper media to assure longevity and clear reproduction.

3.3 CHANGES SUBSEQUENT TO ACCEPTANCE

A. The Contractor has no responsibility for recording changes in the Work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

END OF SECTION 01 7840

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SECTION 02 3100 - SUBSURFACE UTILITY INVESTIGATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes investigation and identification of location of overhead, surface, and underground utilities by the Contractor using firm specializing in underground utility verification.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Divisions 1 through 16 of these Specifications.
2. Section 02 4100: Demolition.
3. Section 31 2000: Earthwork.

PART 2 - PRODUCTS

2.1 UTILITY VERIFICATION COMPANIES

A. Use utility verification firm specializing in underground utility location.
1. Off-site utility verification: Underground Service Alert (USA), 800/642-2444.
2. On-site utility verification:
   a. MDR Utility, (559) 827-3713.
3. Verify and stake all on-site utilities with Owner and on-site investigation prior to excavation.

PART 3 - EXECUTION

3.1 INVESTIGATION

A. Prior to demolition, trenching, and earthwork operations, identify location, routing, and elevation of underground utilities in the construction area and along utility trench routings with the Owner.

B. Verify existing utilities with the service providers (i.e., power, telephone, water, sewer, cable TV, etc.) to the point of connection on site (meter, transformer, etc.)

C. Locate underground utilities using electronic detection when available, utility map analysis, and on-site survey.

D. Underground utilities include but are not limited to gas, water, sewer, storm drain, electrical power and signals (fire alarm, telephone, computer, intercom, data), and sprinkler irrigation and controls.

E. Where non-metallic utilities such as storm drain lines are in the work site, snake metallic trace lines through the line prior to electronic detection.

3.2 IDENTIFICATION

A. Identify underground utilities by stakes, flags, and painted lines.

B. Document the invert elevation of all cleanouts, manholes, and drainage structures.

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C. Maintain staking and marking of such utilities throughout the duration of the Work.

3.3 COORDINATION

A. Coordinate the proposed routing and elevation of pipes, conduits, and trenches that are part of the Work with existing utilities.

B. Coordinate the routing and elevation of new underground utilities with existing underground utilities. Notify the Architect immediately of any conflicts, prior to proceeding with demolition, trenching, or earthwork operations.

3.4 SITE CONDITIONS

A. Where existing utilities are indicated on the drawings, extreme care shall be exercised in excavating near these utilities to avoid damage, and the Contractor will be held responsible for any damage caused by construction operations.

B. Should utilities not indicated on the drawings be found during construction, the Contractor shall promptly notify the Architect for instructions as to further action. Failure to do so will make the Contractor liable for any damage arising from construction operations after discovery of these utilities.

3.5 UNFORSEEN CONDITIONS

A. Utilities and obstructions not traceable or noted on the Drawings will be considered unforeseen. Should such lines be encountered and damaged, the Contractor shall repair such condition immediately. The cost of repairs will be compensated to the Contractor on a time-and-materials basis by change order.

END OF SECTION 02 3100

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SECTION 02 4210 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. In accordance with pertinent provisions of this Section, carefully demolish and remove from the site those items scheduled to be so demolished and removed. Section includes:
   1. Selective demolition of built site elements.
   2. Selective demolition of building elements for alterations purposes.
   3. Abandonment and removal of existing utilities and utility structures.
   4. Removal and/or relocation of designated building equipment and fixtures.
   5. Removal of designated construction.
   6. Disposal of materials.
   7. Storage of removed materials where indicated.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   1. Section 00 3100: Information about known hazardous materials.
   2. Section 01 1100: Work sequence, continued occupancy of the building, limitations on Contractor's use of site and premises, description of items to be removed by Owner, description of items to be salvaged or removed for re-use by Contractor.
   3. Section 01 5000: Temporary enclosures, dust control barricades, security at occupied areas, waste removal, and cleanup during construction.
   4. Section 01 5720: Temporary erosion and sedimentation control.
   5. Section 01 6600: Handling and storage of items removed for salvage and relocation.
   6. Section 01 7300: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products.
   7. Section 01 7330: Cutting and patching.
   8. Section 02 0160: Relocation of existing trees, shrubs, and other plants, pruning of existing trees to remain.
   9. Section 03 3540: Demolition of existing flooring to be polished and dyed.
   10. Section 07 0150: Removal of existing roofing, roof insulation, flashing, trim, and accessories.
   11. Section 31 1000: Vegetation and existing debris removal.
   12. Section 31 2000: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.2 REFERENCES

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022.

1.3 QUALITY ASSURANCE

A. Applicable Codes: Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection. Perform demolition work in accordance with Chapter 33, 2025 California Fire Code.

B. Obtain required permits from authorities and comply with the requirements of the governing jurisdictions.

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C. Do not close or obstruct egress from any building exit or site exit.

D. Do not disable or disrupt building fire or life safety systems without 3 days' prior written notice to Owner.

E. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

1.4 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with adjacent and occupied properties in the general area of the project site.

B. Cease operations immediately if operations appear to be causing any detrimental effect to adjacent properties and notify Architect. Do not resume operations until directed.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

A. Provide, erect, and maintain temporary barriers as required for the work.

B. Protect any existing improvements noted to remain or not noted for demolition.

C. Mark location and termination of utilities.

3.2 EXAMINATION

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only. By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed. Visit the site and verify the extent and location of selective demolition required.
   1. Verify that construction and utility arrangements are as shown.
   2. Carefully identify limits of selective demolition.
   3. Mark interface surfaces as required to enable workmen also to identify items to be removed and items to be left in place intact.
   4. Report discrepancies to Architect before disturbing existing installation.
   5. Beginning of alterations work constitutes acceptance of existing conditions.

3.2 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Use of explosives is not permitted.
   4. Provide, erect, and maintain temporary barriers and security devices.
   5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.

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6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
7. Do not close or obstruct roadways or sidewalks without permit.
8. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Demolished material shall be considered property of the Contractor and shall be completely removed from the job site except where specifically noted otherwise. Do not burn or bury materials on site.

C. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

D. Do not begin removal until receipt of notification to proceed from Owner.

E. Do not begin removal until built elements to be salvaged or relocated have been removed.

F. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.

G. Remove materials as demolition progresses. Upon completion of demolition, leave areas in clean condition.

H. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

3.3 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

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3.4 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.
   2. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.

E. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

F. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, Telecommunications, and Intrusion Alarm): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. See Section 01 1110 for other limitations on outages and required notifications.
   4. Verify that abandoned services serve only abandoned facilities before removal.
   5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

3.5 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

3.6 REPLACEMENTS

A. In the event of demolition of items not so scheduled to be demolished, promptly replace such items to the approval of the Architect and at no additional cost to the Owner.

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END OF SECTION 02 4210

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SECTION 03 1510 - POST-INSTALLED ANCHORS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide post-installed anchors where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
   1. Definition: Post-installed anchors are concrete anchors installed in drilled holes after concrete has hardened and includes expansion anchors, screw anchors, and epoxy-type (adhesive) anchors.

B. Related Sections:
   1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this section.
   2. Section 03 3000: Cast-in-place concrete.
   3. Section 05 5000: Metal fabrications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.

B. Product Data:
   1. Submit manufacturer's descriptive literature and product specifications for each product.
   2. Include data to indicate compliance with the specified requirements.
   3. Submit manufacturer's recommended installation procedures.
   4. Submit current ICC research or evaluation reports evidencing maximum allowable shear and withdrawal load data.

1.3 QUALITY ASSURANCE

A. Single Source Responsibility: To ensure consistent quality of anchorage, obtain concrete expansion anchors from a single manufacturer.

B. Manufacturer Qualifications: Provide concrete expansion anchors with current International Code Council Evaluation Service Reports acceptable to the Division of the State Architect, and in conformance with the 2025 California Building Code.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
   1. Hilti KB-TZ2 (ESR 4266).
   2. Simpson Strong-Bolt (ESR-1771).
   3. Hilti HUS-EZ (ESR-3027).
   4. SimpsonTiten HD (ESR-2713).
   5. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

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B. Finish: Type 316 stainless steel at exterior applications; zinc-plated at interior applications; mechanically galvanized or type 316 stainless steel when in contact with preservative treated lumber.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate and furnish anchorages and directions for installation from manufacturer for items to be embedded in concrete construction.

3.2 INSTALLATION

A. Fastening to In-Place Construction (New or Existing Concrete): Provide anchorage devices where necessary for securing designated items indicated on the drawings, or as necessary for a complete and proper job to in-place construction.

B. Install post-installed anchors in strict accordance with the manufacturer's written instructions.

C. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for designated items of construction. Set work accurately in location, alignment and elevation, level true and free of rack, measured from established lines and levels.

D. Concrete shall attain the specified design strength per the contract documents (2,500 psi minimum) prior to installation of post-installed anchors. Adhesive anchors shall be installed into concrete having a minimum age of 21 days at the time of installation. No anchors shall be installed into concrete that is less than 7 days old.

3.3 TESTING AND INSPECTION REQUIREMENTS

A. General Testing Requirements:
   1. For verifying satisfactory installation workmanship, an independent testing laboratory shall proof load tests for concrete expansion anchors acting in tension in the presence of the project inspector.
   2. If any anchor fails testing, test all anchors of the same type, not previously tested until 20 consecutive anchors pass, then resume the initial test frequency.
      a. If anchors are used for the support and bracing of non-structural components such as pipe, duct or conduit, the 20 consecutive anchors shall be only those anchors installed by the same trade.
   3. Continuous Inspection: Continuous inspection shall be provided during installation by project inspector.

B. Testing Frequency:
   1. Sill Plate Bolting: Test 10% of anchors.
   2. Other Structural Applications: Test all anchors.
   3. Non-structural Applications and Equipment Anchorage: Test 50% or alternate bolts in a group, including at least 1/2 of the anchors in each group.
   4. Exceptions:
      a. Undercut anchors that allow visual confirmation of full set shall not require testing.
      b. Where the factored design tension on anchors is less than 100 pounds and the anchor is clearly noted on the approved construction documents, only 10% of those anchors shall be tested.
      c. Where adhesive anchor systems are used to install reinforcing dowel bars in hardened concrete, only 25% of the dowels shall be tested if all of the following conditions are met:
         1) The dowels are used exclusively to transmit shear forces across joints between existing and new concrete.
         2) The number of dowels in any one member equal or exceeds 12.

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3) The dowels are uniformly distributed across a seismic force resisting members (such as shear walls, collectors, and diaphragms).
4) Anchors to be tested shall be selected at random by the special inspector.

d. Testing of shear dowels across cold joints in slabs on grade, where the slab is not part of the lateral force-resisting systems shall not be required.
e. Testing is not required for power actuated fasteners used to attach metal tracks of interior non-shear wall partitions for shear only, where there are at least three fasteners per segment of track.

C. Test Loads: Test loads shall be listed in the contract drawings and shall be determined by one of the following methods:
1. Twice the maximum allowable tension load or 1-1/4 times the maximum design strength of anchors as provided in the anchor's ICC-ESR or in accordance with Appendix D of ACI 318.
a. Tension test load need not exceed 80% of nominal yield strength of anchor element ($0.8A_bF_y$).
2. Tension or torque test values from the table within the contract drawings.

D. Test Acceptance Criteria: Use the ICC-ESR for the anchor installed or the manufacturer's written instructions, acceptable to DSA. Field tests shall satisfy the following minimum requirements:
1. Hydraulic Ram Method: Anchors tested with a hydraulic jack or spring loaded devices shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernible movement during the tension test, e.g. as evidence of loosening of the washer under the nut. For adhesive anchors, where other than bond is being tested, the testing devices shall not restrict the concrete shear cone type failure mechanism from occurring.
2. Torque Wrenched Method: Anchors tested with a calibrated torque wrench must attain the specified torque within 1/2 turn of the nut.
a. Exceptions:
1). Wedge or Sleeve type: 1/4 turn of the nut for a 3/8" sleeve anchor only.
2). Screw Type: 1/4 turn of screw after initial seating of the screw head.

E. Testing Procedure:
1. Testing procedure shall be as required by the manufacturer’s ICC-ESR.
2. Manufacturer’s recommendation for testing may be approved by the enforcing agency, when ICC-ESR does not provide testing procedure.

END OF SECTION 03 1510

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SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide cast-in-place concrete, including form work and reinforcement, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
   1. The work of this Section includes special precautions to reduce cracking in concrete slabs.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Section 03 1510: Post-installed Anchors.
   3. Section 07 9210: Joint Sealants.
   4. Section 31 2000: Earthwork.

C. Special Coordination Requirements: Coordinate with the work of the following sections to identify the finish flooring manufacturer's concrete slab requirements. Such requirements may be over and above the requirements of the Contract Documents and may require additional materials, means, or methods, which shall be included as part of the Work.

   1. Section 03 3450: Polished and dyed concrete flooring.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Mix Designs: Secure concrete mix designs from the concrete supplier or the testing laboratory in accordance with provisions of Section 01 4520, and submit to the Architect for review and approval. Distribute approved mix designs to testing laboratory, batch plant, job site, and governmental agencies having jurisdiction.
      a. Include a statement clearly indicating the concrete supplier's proposed basis of concrete mix proportions based on ACI 301-16, Section 4.2.3.
      b. When ACI 301-16, Section 4.2.3 is used, strength records used for establishing and documenting concrete mixture proportions shall not be more than 24 months old.
   2. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements for the following:
      a. Vapor barrier.
      b. Curing materials.
      c. Admixtures.
   3. Shop Drawings: Submit shop drawings for the reinforcing steel.
   4. Submit cementitious materials certification to DSA complying with CBC Section 1910A.1.
   5. Submit batch tickets of each load to the Inspector of Record.

1.3 QUALITY ASSURANCE

A. Codes and Standards: Comply with 2025 California Building Code except where more stringent requirements are shown or specified.

B. In accordance with CBC Section 1705A.3.5, do not place concrete until forms and reinforcement have been inspected, all preparations for placement have been completed, and preparations have been checked by the Inspector of Record, all subject to observation of the Architect, Structural Engineer and DSA.

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C. Placing Record: In accordance with CBC Section 1705A.3.6, keep a concrete placing record on site recording the time and date of placing the concrete in each portion of the structure. Keep placing record until completion of the structure and make available to the inspection of the Owner, Architect, Structural Engineer, Inspector of Record, and DSA.

D. Field Mock-up: Before performing work of this Section, provide following field mock-up to verify selections made under submittals and to demonstrate aesthetic finish and texture of site concrete, parking lot concrete and fire lane concrete. Approval does not constitute approval of deviations from Contract Documents, unless Architect specifically approves deviations in writing.
   1. Form, reinforce, and cast concrete slab for 3 foot square field mock-up. One mock-up for each finish and texture specified.
   2. Concrete shall be same mix design as scheduled for Project.
   3. Perform placement and finishing work using same personnel as will place and finish concrete for Project.
   4. Mock-up shall be representative of work to be expected.
   5. Approval is for following aesthetic qualities:
      a. Compliance with approved submittals.
      b. Compliance with specified finish and texture.
      d. Compliance with specified color.
   6. Obtain mock-up approval by the Owner, Architect and Project Inspector before starting work on Project.
   7. Unacceptable mock-ups shall be removed from the site and reinstalled until the mock-up is deemed to be in compliance with the project requirements and is acceptable by the Owner, Architect and Project Inspector.
   8. Protect and maintain approved field mock-ups during construction in an undisturbed condition as a standard for judging completed work. Remove mock-up and dispose of materials when no longer required and when directed by the Architect at the end of the project.

1.4 NOTICE CONCERNING SLAB CURLING AND SHRINKAGE CRACKING

A. The Contractor is hereby notified that concrete construction practices and concrete materials can significantly increase the potential for cracking and slab curling, which include the following:
   1. Placement of slabs over high-moisture content subgrade.
   2. Increased mix temperature.
   3. Excessive haul in transit mixture, too long a waiting period at the project site, or too many revolutions at mixing speed.
   4. Use of smaller size aggregate under conditions where larger could have been used.
   5. Use of mixture having high shrinkage characteristics.
   6. Excessive coatings on aggregate due to insufficient washing or contamination during handling.
   7. Use of aggregates of poor inherent quality with respect to shrinkage.
   8. Exceeding the maximum water/cement ratio.

B. The Contractor is responsible for choosing concrete materials and for implementing concrete construction practices which minimize slab curling and shrinkage cracking.

C. Special Concerns:
   1. The Contractor is hereby notified that the Work includes basketball, volley ball, tennis, and / or other uses which require minimum joints and minimum curling in the concrete slab playing surface.
   2. The Architect has taken normal and customary precautions in the design of the concrete slabs for these uses through the specification of concrete materials, mix, and execution criteria, and through detailing concrete joints and steel reinforcing.
   3. The Contractor is responsible to choose concrete materials and implement concrete construction practices which minimize slab curling and shrinkage cracking in these areas of special use.

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1.5 SPECIAL WARRANTY

A. Manufacturer's Warranty: In addition to the warranty requirements of the Contract Documents, submit 2 copies of a warranty from the interior slab curing product manufacturer with an extended correction period of **15-years** covering labor and materials to replace or repair floor covering that fails due to moisture migration or moisture-born alkalinity contaminates originating from the concrete.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 FORMS

A. Design, erect, support, brace, and maintain formwork so it will safely support vertical and lateral loads which might be applied until such loads can be supported safely by the concrete structure.

B. Except for metal forms, use new materials. Materials may be re-used during progress of the Work, provided they are completely cleaned and reconditioned, recoated for each use, and capable of producing formwork of the required quality.
   1. Form Facing for Exposed to View Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Chamfer or radius outside corners of beams, joists, columns, and walls.

C. Slip Dowel System: Speed Dowel by Westec Barrier Technologies; #4 rebar dowels x 24" long at 18" on center, minimum of 12" sleeve.

D. Snap Ties: Snap Ties by Dayton/Richmond Concrete Accessories (Constar Supply 559-564-5012), with A-8 Waterseal Washer.

E. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.

2.3 MOISTURE BARRIER

A. Capillary Break: 3" of 3/8" natural pea gravel or 3/4" maximum crushed rock. Less than 5% passing No. 4 sieve.

B. Vapor Barrier: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
   1. Acceptable Products:
      a. Stego Wrap 15-mil Vapor Barrier by Stego Industries LLC.
      b. Vaporguard by Reef Industries.
      c. Perminator 15-mil by W.R. Meadows.
      d. Viper Vaporcheck II 15-mil Class A Vapor Barrier by ISI Building Products.
   2. Material Properties:

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a. Manufactured from prime virgin resins.
b. Permeance Rating: ASTM F1249, 0.01 perms or lower.
c. Permeance after Conditioning: ASTM E154, Sections 8, 11, 12, and 13: Less than 0.01 perms.
d. Puncture Resistance: ASTM E1709, minimum 2200 grams.
e. Tensile Strength: ASTM D882, minimum 50.0 lbf/in.

3. Seal Tapes: Manufacturer's recommended tape for sealing seams in the vapor barrier and for sealing the vapor barrier to fresh concrete.
4. Mastic: Manufacturer’s recommended mastic.
5. Accessories: Construct pipe boots from vapor barrier material, pressure sensitive tape and/or mastic per manufacturer’s instructions.

C. Compactable Slab Base: 3" of granular fill that is compactable, will remain stable, and support construction traffic.
1. Granular fill is defined as a clean, fine grained uniformly-graded material with at least 10% to 30% of particles passing a No. 100 sieve, but not contaminated with clay, silt, or organic material.
2. Expansion Index: < 15
3. The use of clean concrete sand will not be permitted.

2.4 REINFORCEMENT

A. Comply with the following as minimums:
1. Bars: ASTM A615, Grade 40 for #3 bars and smaller, Grade 60 for #4 bars and larger, using deformed bars for #3 and larger.
2. Bending: ACI 318-19, Section 26.6.3.
a Bars shall be limited to one shop or field bend at any location on the bar.
b. Partially embedded bars shall not be field bent, except as indicated on the Drawings or permitted by the Architect.
c. A bar bent in the incorrect location shall not be straightened; such bars shall be discarded.

B. Fabricate reinforcement to the required shapes and dimensions, within fabrication tolerances stated in ACI 318-19.

C. Do not use reinforcement having any of the following defects:
1. Bar lengths, depths, or bends exceeding the specified fabricating tolerances;
2. Bends or kinks not indicated on the Drawings or required for this Work;
3. Bars with cross-section reduced due to excessive rust or other causes.

D. Shop fusion welded stirrup/tie cages shall be permitted provided they are in conformance with CBC 1903A.8.

2.5 CONCRETE

A. Portland Cement: ASTM C150, Type II.

B. Fly Ash: May be used as a partial substitute for Portland cement as follows:
1. Fly ash: ASTM C618, Class N or F (Class C is not permitted).
2. Fly ash used may be included in the water/cement ratio calculation.
3. Not more than 20% by weight of fly ash shall be substituted for Portland cement.
4. For concrete with surfaces to be polished, no fly ash in the mixture is allowed.

C. Normal Weight Aggregate: ACI 318 Section 26.4.1.2.1(a).(1) and ASTM C 33, except as modified in CBC Section 1903A.5. Provide aggregates from a single source for exposed concrete.

D. Water: ACI 318-19, Section 26.4.1.4.

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E. Admixtures:
   1. Do not use calcium chloride admixtures.
   2. Admixtures are not permitted without approval from Architect and DSA.

2.6 NORMAL WEIGHT CONCRETE DESIGN MIX

A. Proportions: Concrete mix shall be proportioned based on field experience or trial mixtures in accordance with ACI 318-19, Section 26.4.3, and ACI 301-16, Section 4.2.3.
   1. Mix design submittals shall include a statement clearly indicating the concrete supplier's proposed basis of concrete mix proportions through the use of one of the following:
      a. Field experience under ACI 301-16 paragraph 4.2.3.4a, or
      b. Trial mixtures under ACI 301-16 paragraph 4.2.3.4b.
   2. When ACI 301-16, Section 4.2.3 is used as the concrete supplier's proposed basis of concrete mix proportions, strength records used for establishing and documenting concrete mixture proportions shall not be more than 24 months old.

B. Design Professional: A registered civil or structural engineer, licensed in California, with experience in concrete mix design shall select the relative amounts of ingredients to be used as basic proportions of the concrete mixes proposed for use (per DSA IR 17-13).
   1. Mix design submittals shall include the engineer’s stamp and signature.

C. Cement Content: Minimum of 5.5 sacks of cement per cubic yard, unless otherwise noted below.
   1. Minimum of 5.0 sacks of cement per cubic yard for rat slabs.
   2. Off-site concrete shall conform to governing agency standards.

D. Type A Water Reducer (interior slab on grade only): 28.20 oz/cy, plus or minus 20%.

E. Water/Cementitious Material Ratio:
   1. Footings: Maximum of 0.56.
   2. Site Concrete: Maximum of 0.67.
   3. Interior Slabs/Parking Lots/Fire Lanes: Maximum of 0.50.

F. Minimum Compressive Strength:
   1. Footings, interior slabs, parking lots, fire lanes and retaining walls: 3,000 psi at 28 days.
   2. Site Concrete and rat slabs: 2,500 psi at 28 days.
   3. Polished concrete: 3,500 to 4,000 psi at 28 days.

G. Aggregate Gradation Optimization:
   1. Workability Factor: 32-42%; **target 35%.**
   2. Coarseness Factor: 52-72%; **target 60%.**
   3. Fineness Modulus: 2.80 to 3.10.
   4. Paste Fraction: 27% plus or minus.
   5. Mortar Fraction: Passing the No. 8 sieve.
      a. ¾” to 1” aggregate: 55-57%.
      b. 1-1/2” aggregate: 53-54%.

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H. Aggregate Gradation Limits of Combined Mixture:

Sieve Size	% Passing	
	Interior Slabs Parking Lots Fire Lanes 1-1/2"	**Footings Site Concrete Rat Slab Retaining Walls 1"**
2"	100	--
1-1/2"	95-100	100
1"	80-96	94-100
3/4"	65-80	87-99
1/2"	55-65	65-78
3/8"	45-60	55-64
#4	35-50	40-55
#8	25-38	33-43
#16	20-30	19-32
#30	10-20	9-24
#50	2-12	4-12
#100	1-6	1-8
#200	0-4	0-4

I. Slump Limits: Proportion and design mixes for slump at point of placement of 4" plus or minus 1".

J. Concrete Temperature: 90 deg F maximum at time of placement.

K. Ready-Mix Concrete: Comply with ASTM C94, and as herein specified.

2.7 LIGHTWEIGHT CONCRETE DESIGN MIX

A. Proportions: Concrete mix shall be proportioned based on field experience or trial mixtures in accordance with ACI 318-19, Section 26.4.3, and ACI 301-16, Section 4.2.3.
   1. Mix design submittals shall include a statement clearly indicating the concrete supplier's proposed basis of concrete mix proportions through the use of one of the following:
      a. Field experience under ACI 301-16 paragraph 4.2.3.4a, or
      b. Trial mixtures under ACI 301-16 paragraph 4.2.3.4b.
   2. When ACI 301-16, Section 4.2.3 is used as the concrete supplier's proposed basis of concrete mix proportions, strength records used for establishing and documenting concrete mixture proportions shall not be more than 24 months old.

B. Aggregate: Expanded shale, vacuum saturated or thermal quenched; ASTM C330.
   1. Maximum Lightweight Aggregate Size: 3/4".

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C. Shrinkage Control: Aggregate shall be prepared within 72 hours of being used or be re-wetted for 1/2 hour, twice a day if longer storage is required at the plant.

D. Compressive Strength: 3,000 psi at 28 days. Polished concrete: 3,500 to 4,000 psi at 28 days.

E. Slump Limits: 3" plus or minus 1", measured at the end of the discharge line.

F. Cement Content: Minimum 6.0 sacks of cement per cubic yard.

G. Water/Cement Ratio: 0.50 maximum, measured on free water only.

H. Maximum Lightweight Aggregate Size: 3/4".

I. Entrained Air: 4% to 7%.

J. Weight: 110 pounds per cubic foot, plus or minus 3 pounds.

2.8 CURING MATERIALS

A. Interior Slabs with tile, polished concrete, sealed concrete or bare concrete: Curing blanket, 4 mil white opaque polyethylene laminated over 10 oz. burlap; ASTM C171.

B. Exterior Flatwork on Grade: Clear, Curing compound, colorless, non-yellowing material containing 30% solids content minimum; ASTM C309.
   1. Shall not discolor concrete or other materials, shall not leave an oily residue upon evaporation of solvent.
   2. Shall afford moisture loss not greater than 0.055 grams/cm^2 at minimum average of 300 square feet.
   3. Meet State of California Air Regulation Board Solvent Emission Standards.
   4. Curing compounds may not be used on areas to receive traffic coatings unless specifically accepted by the traffic coating manufacturer.
   5. Solvent borne acrylic cure and seal products are not acceptable; ASTM C1315.

2.9 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

B. Expansion Joint Filler: Comply with ASTM D1751 or provide resin-impregnated fiberboard conforming to ASTM D1752.

C. Non-shrink Grout:
   1. Factory premixed grout; ASTM C1107.
   2. Compressive strength: 7,000 psi at 28 days.

D. Dry Pack Grout: One part Portland Cement to two parts fine sand.

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PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Coordinate with Section 31 2000 – Earthwork prior to placing any concrete.

3.2 MOISTURE BARRIER

A. Installation of Capillary Break:
1. Prior to placing the rock capillary break, provide trench for all materials laid on the subgrade (i.e. piping and conduits), so that no material will project more than 3/4" above the subgrade.
2. Evenly spread pea gravel over compacted subgrade.

B. Install vapor barrier in accordance ASTM E1643:
1. Level and tamp or roll aggregate, sand or tamped earth base.
2. Install vapor barrier in strict accordance with the manufacturer's written instructions, taping all joints and installing the manufacturer's pipe boots at all penetrating pipes and conduits.
3. Unroll vapor barrier with the longest dimension parallel with the direction of the pour.
4. Overlap joints 6" minimum and seal with manufacturer’s tape.
5. Seal vapor barrier to footings or concrete stemwall per manufacturer’s instructions.
6. Seal all penetrations (including pipes) per manufacturer’s instructions.
7. **No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.** Use slab forming and screeding methods and products which do not puncture the vapor barrier.
8. Repair damaged areas by cutting patches of vapor barrier, overlap damaged area 6", and tape all four sides with tape.
9. Where ganged conduits are required, bundle with manufacturer’s tape and fill voids with mastic.

C. Installation of Slab Base:
1. Slab base material is a granular fill that is compactible, easy to trim, and will remain stable and support construction traffic.
2. Cover vapor barrier with granular fill spread evenly to 3" thickness with a tolerance of +0" / -1" when measured from the bottom of the slab.
3. Hold granular fill 12" away from exterior walls.
4. Proof roll granular fill after installation to determine if it is uniformly stable to provide adequate bearing support during and after construction.
5. **Moisture Content:** Granular fill moisture content shall be **below 6%** at time of concrete placement. If granular fill is saturated prior to placement of concrete, remove the material and replace.
6. If rain is forecast prior to continuation of slab placement, remove granular fill adjacent to completed slab, cut and fold back vapor barrier over slab and seal to protect from water penetration into granular fill under existing concrete slab. Prior to continuing slab placement, fold back the vapor barrier, provide vapor barrier transition with minimum of 6" lap continuous both sides, replace granular fill and continue with concrete placement.

D. Protection of Installed Slab Base:
1. Protect all installed slab base construction from precipitation and water penetration by covering and providing positive drainage away from the slab base.
2. Cover slab openings and blockouts around columns to prevent penetration of water into the slab base and capillary break.

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3.3 FORMWORK INSTALLATION

A. Construct forms to the exact sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, grades, and level and plumb work in the finished structure.
   1. **Non-Exposed Surfaces:** Where concrete surfaces are not exposed to view, construct formwork conforming to a Class B Surface, Paragraph 4.8.3 of ACI PRC-117.1-14.
   2. **Exposed Surfaces:** Where concrete surfaces are exposed to view, construct forms so that concrete surfaces will have a tolerance of 1/2 of the tolerance limits of a Class A Surface, Paragraph 4.8.3 of ACI PRC-117.1-14.

B. Forms shall be substantial and sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together to maintain position and shape. Forms and their supports shall be designed so as not to damage previously placed structure.
   1. Slab Forming Techniques: Do not puncture the vapor barrier.

3.4 SOIL TREATMENT OF SIDEWALK AND PAVEMENT AREAS WITH HERBICIDES

A. Just prior to placing concrete for pavements and sidewalks, apply herbicide soil treatment at recommended rates for application. Protect desirable vegetation from herbicide treatment.

B. Herbicide shall bear evidence of registration under Federal Insecticide, Fungicide, and Rodenticide Act for weed control application.

3.5 REINFORCING

A. Comply with the following, as well as the specified standards, for details and methods of reinforcing placement and supports.
   1. Clean reinforcement and remove loose dust and mill scale, earth, oil, and other materials which reduce bond or destroy bond with concrete.
   2. Position, support, and secure reinforcement against displacement by forms, construction, and the concrete placement operations. Provide metal chairs, dobies, or other aids manufactured for this purpose.
   3. Place reinforcement to obtain the required coverages for concrete protection.
   4. Reinforcement of site concrete and fire lane paving shall be placed at 2” below the concrete surface unless otherwise shown.
   5. Unless otherwise shown or noted on the Drawings, lap bars as noted on Lap Schedule in structural drawings.
   6. Partially embedded reinforcing shall not be bent without the approval of the DSA.

3.6 EMBEDDED ITEMS

A. Do not embed piping, other than electrical conduit, in structural concrete. See structural drawings for provisions for pipes, sleeves, conduits or other penetrations into or through the footings.

B. Set bolts, inserts, and other required items in the concrete, accurately secured so they will not be displaced, and in the precise locations needed. **IN NO CASE SHALL ANY BOLT OR ANCHOR BE STABBED IN PLACE WHILE OR AFTER THE CONCRETE IS POURED.** Evidence of stabbing will necessitate testing at the expense of the contractor.

C. **Slip Dowel System:** Install in accordance with manufacturer’s written recommendations.

3.7 MIXING CONCRETE

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A. Transit mix the concrete in accordance with provisions of ASTM C94.
   1. Water shall only be added at the beginning of discharge and shall be a one-time addition of water. At a minimum, the drum shall be turned an additional 30 revolutions after addition of water. After discharge has begun the addition of water is prohibited.
   2. Discharge of the concrete shall be completed within 90 minutes, or before the drum has revolved 300 times after the cement has been exposed to the mixing water or aggregates.

B. Cold Weather Requirements:
   1. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather. All concrete materials and all reinforcement, forms, fillers, and ground with which concrete is to come in contact shall be free from frost. Frozen materials or materials containing ice shall not be used.
   2. When mixing concrete during freezing or near-freezing weather, the mix shall have a temperature of at least 55 deg F., but not more than 90 deg F. When necessary, concrete materials shall be heated before mixing. Special precautions shall be taken for the protection of transit-mixed concrete.
   3. The concrete shall be maintained at a temperature of at least 55 deg F. for not less than 72 hours after placing. After the initial curing period allow the concrete surface to dry prior to exposure. Do not permit the concrete to cool faster than the rate of 5 deg F per hour or more for the first 24 hours.

C. Hot Weather Requirements:
   1. During hot weather, proper attention shall be given to ingredients, production methods, handling, placing, protection and curing to prevent excessive concrete temperatures or water evaporation that may impair required strength or serviceability of the member or structure.
   2. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

3.8 PLACING CONCRETE

A. Concrete shall not be placed until the forms and reinforcement have been inspected, all preparations for the placement have been completed, and the preparations have been checked by the Inspector of Record, all subject to the observation of the structural engineer or Architect.

B. Preparation:
   1. Remove foreign matter accumulated in the forms.
   2. Rigidly close openings left in the formwork.
   3. Wet wood forms sufficiently to tighten up cracks; wet other material sufficiently to maintain workability of the concrete.
   4. Use only clean forms and tools.

C. Conveying: ACI 318-19, Section 26.5.2.1.
   1. Concrete shall be conveyed from mixer to place of final deposit by methods that will prevent separation or loss of materials.
   2. Conveying equipment shall be capable of providing a supply of concrete at site of placement without separation of ingredients and without interruptions sufficient to permit loss of plasticity between successive increments.
   3. Remove rejected concrete from the job site.

D. Placing Concrete in Forms: ACI 318-19, Section 26.5.2.1.
   1. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Concreting shall be carried on at such a rate that concrete is at all times plastic and flows readily into spaces between reinforcement.
   2. Where concrete is placed in lifts, each lift shall be thoroughly consolidated before the next layer is placed.

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The rate of placement shall be rapid enough so that previously placed concrete has not yet set when the next lift of concrete is placed upon it. Do not allow flow lines, seams, and planes of weakness (cold joints) to form as a result of placement means and methods.

E. Placing Concrete Slabs:
1. Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
2. Bring slab surfaces to the correct level with a straightedge, and then strike off.
3. Use wood bullfloats or darbies to smooth the surface, leaving the surface free from bumps and hollows.
4. Do not sprinkle water on the plastic surface. Do not disturb the slab surface prior to start of finishing operations.

3.9 CONSOLIDATION

A. All concrete shall be thoroughly consolidated by suitable means during placement and shall be thoroughly worked around reinforcement and embedded fixtures and into corners of forms.
1. Where conditions make consolidation difficult, or where reinforcement is congested, batches of concrete adjusted to use smaller size aggregates shall be used as approved by the structural engineer and the enforcement agency.
2. Do not vibrate forms or reinforcement.
3. Do not use vibrators to transport concrete inside the forms.
4. Perform consolidation by experienced personnel.

3.10 JOINTS

A. Construction Joints (CJ):
1. Do not use horizontal construction joints except as may be shown on the Drawings.
2. If additional construction joints are found to be required, secure the Architect's approval of joint design and location prior to start of concrete placement.
3. Joints shall be constructed in accordance with ACI 318-19, Section 26.5.6.

B. Isolation Joints (IJ):
1. Do not permit reinforcement or other embedded metal items that are being bonded with concrete (except dowels in floors bonded on only one side of the joints) to extend continuously through any isolation joint, unless specifically noted.
2. Fill isolation joints full depth with joint material approved by the Architect.
3. Provide isolation joints as shown on plans.

C. Crack Control Joint (CCJ):
1. Provide template or guide as required for straight sawcut.
2. Joints shall be spaced as indicated on the Drawings, but not more than 10'-0" on center.
a. Joints shall be placed to produce panels that are as square as possible and never exceed a length to width ratio of 1 ½ to 1 – in which case additional joints shall be installed.
3. Saw cut joints before concrete begins to cool, within 2 to 12 hours after placing.
4. Use 1/8" thick blade and cut at least 1" deep but not less than one third (1/3) the depth of the slab.

3.11 CONCRETE SLAB FINISHING

A. Finish work shall be performed in accordance with ACI 302.1R-15, Chapter 10.

B. Finished Slab Surfaces: Except as may be shown otherwise on the Drawings, provide the following finishes at the indicated locations:
1. Scratch Finish: Apply to monolithic slab surfaces that are to receive concrete floor topping or mortar

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setting bed.

2. Float Finish: Apply to monolithic slab surfaces that are to receive trowel finish and other finishes specified hereinafter, and to slab surfaces which are to be covered with tile on a setting bed.
3. Trowel Finish: Apply to interior monolithic slab surfaces that are to be exposed to view, unless otherwise shown, and to slab surfaces that are to be covered with resilient flooring, carpeting, thin-set tile, paint, or other thin-film finish coating system.
4. Non-slip Broom Finish: Apply to exterior walks, stairs, drives, ramps, and similar pedestrian and vehicular areas. Coordinate required final finish with Architect before application.
   a. Medium broom finish for slopes < 5%.
   b. Heavy broom finish for slopes ≥5%.

C. Finish Concrete Slab Tolerances:
1. Slabs shall be level unless slope is otherwise specified.
2. Tolerances of finished slab surfaces shall comply with ACI 117.1R-14 "Class A Surface Finish Tolerance". Depressions in floor between high spots shall not be greater than 1/8" between a 10' long straight edge.
3. Depressed surfaces shall be leveled with an approved filler and sanded smooth.
4. High spots shall be ground down until level. Remove dislodged aggregate and patch floor.
5. Grind or fill surface defects which would telegraph through applied floor covering systems.
6. Owner reserves the right to test floors and concrete members for conformance to ACI 117.1R-14 Tolerance Specifications by Use of the "Dipstick Floor Profiler". Should tolerances not be within the limits specified, the Contractor shall be required to pay for all testing costs and repairs required to bring materials into compliance.

D. Exterior Flatwork Edge and Joint Finishing:
1. Finish slab edges, including those at formed joints, with an edger having a radius of 1/8".
2. Edge transverse joints prior to brooming. Brooming shall eliminate the flat surface left by the surface face of the edger.
3. Corners and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with the properly proportioned mortar mixture and then finished.

E. Required Grinding of Interior Slab:
1. The Contractor shall anticipate that grinding will be required as a result of curling or other slab defects. Grinding required to bring the slab surface into acceptable tolerances for finished flooring installation shall be included as part of the Work.
2. Provide a slip resistant surface after grinding and filling with a 0.6 coefficient of friction at exposed slabs and exterior flatwork.

3.12 CURING

A. ACI 318, Section 26.5.3: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

3.13 REMOVAL OF FORMS

A. ACI 318, Section 26.11.2.
1. Forms shall be removed in such manner as not to impair safety and serviceability of the structure. All concrete to be exposed by form removal shall have sufficient strength not to be damaged thereby.

B. No portion of the forming and shoring system may be removed less than 12 hours after placing concrete. When stripping time is less than the specified curing time, measures shall be taken to provide adequate curing and thermal protection of the stripped concrete.
1. Do not remove shoring until the member has acquired sufficient strength to support its own weight, the load upon it, and the added load of construction.

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2. Do not strip vertical concrete in less than 7 days.

C. Finished Surfaces:
1. Exercise care in removing forms from finished concrete surfaces so that surfaces are not marred or gouged.
2. Release sleeve nuts or clamps, and pull the form ties neatly.
3. Do not permit steel spreaders, form ties, or other metal to project from, or be visible on, any concrete surface except where so shown on the Drawings.

D. Repair of Surface Defects: Repair or replace deficient work at no additional cost to the Owner.
1. Repair tie holes and other surface defects immediately after formwork removal.
2. Where the concrete surface will be textured by sandblasting or bush-hammering, repair surface defects before texturing.
3. Repair tie holes and surface defects to match surrounding concrete color and surface texture.
4. Repair tie holes and surface defects in conformance with ACI 301-16, Paragraph 5.3.7.

3.14 SURFACE FINISH OF VERTICAL CONCRETE SURFACES

A. Unexposed Form Finish: Rub down or chip off fins or other raised areas.

B. Exposed (to view) Form Finish: Rub down or chip off and smooth fins or other raised areas.
1. As-Cast Finish: Provide surface finish 3.0 in accordance with ACI 301-16, Paragraph 5.3.3.3.
2. Rubbed Finish:
a. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
b. Grout Cleaned Finish: Wet areas to be cleaned and apply grout mixture by brush or spray; scrub immediately to remove excess grout. After drying, rub vigorously with clean burlap, and keep moist for 36 hours.
c. Cork Floated Finish: Immediately after form removal, apply grout with trowel or firm rubber float; compress grout with low-speed grinder, and apply final texture with cork float.

3.15 FINISH OF CURBS AND GUTTERS

A. Finish of Curbs and Gutters:
1. Tool edges of gutter and top of curb with an edging tool to a radius of 1/2"
2. Float and finish surfaces with a smooth wood float until true to grade, section and uniform in texture.
3. Brush floated surfaces with a fine-hair brush using longitudinal strokes.
4. Immediately after removing the front curb form, rub face of curb with wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. While still wet, brush surface in the same manner as the gutter and curb top.
5. Finish the top surface of gutter and entrance drives to grade with a wood float.

3.16 MISCELLANEOUS CONCRETE ITEMS

A. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

B. Grout base plates and foundations as indicated, using specified non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.

C. Dry Pack Grout:
1. Pack solid under sill plates where indicated to provide continuous bearing.
2. Provide dry pack prior to installation of roof framing.

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3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Testing of concrete materials shall comply with Section 01 4520, CBC Chapter 17A, and CBC Section 1910A.

B. The Owner will employ a testing laboratory to perform tests and to submit test reports. Sampling and testing for quality control during placement of concrete may include the following, as directed by the Architect.

C. Compaction and Moisture Testing sub-grade.
1. Test sub-grade immediately prior to placing any concrete or placing a vapor barrier as described in Section 31 2000 – Earthwork.

D. Sampling Fresh Concrete: Comply with requirements of ASTM C172.
1. Slump: ASTM C143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
2. Concrete Temperature: Test hourly when air temperature is 40 degrees F and below, and when 80 degrees F and above; and each time a set of compression test specimens are made.
3. Compression Test Specimen: ASTM C31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
4. Compressive Strength Tests: ASTM C39; one set for each day's pour, but not less than one set for each 50 cubic yards or each 2,000 square feet of surface area of slabs or walls for each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days; and one specimen retained in reserve for later testing if required.
5. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

E. Batch Plant Inspection:
1. Continuous batch plant inspection during mixing will be required on this project for structural concrete, including but not limited to footings, foundation walls, retaining walls, columns, and floor slabs in compliance with CBC Section 1705A.3.3.
2. Batch plant inspection may be waived in accordance with CBC Section 1705A.3.3.1.

F. Reinforcing Steel Testing **will be required on this project**, except for non-structural concrete work. Comply with CBC Section 1910A.2; testing will be waived if mill certificates are provided.

G. Slab Finish Tolerance Testing: Where requested by the Architect, test slabs for finish tolerance in accordance with ACI 117 Tolerance Specifications by Use of the "Dipstick Floor Profiler".

H. Test Results will be reported in writing to Architect and Contractor within 24 hours that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

I. Non-Destructive Testing: Rebound hammer, sonoscope, or other non-destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

J. Additional Tests:
1. The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect.

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2. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.
3. The Owner shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.
4. The Owner shall be compensated for such additional testing by deducting the additional costs from the General Contractor's final payment.

END OF SECTION 03 3000

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SECTION 03 3540 - POLISHED AND DYED CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide colored and bonded abrasive polished concrete floors using multi-step wet/dry mechanical process where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 02 4210: Selective Demolition
3. Section 03 3000: Cast-In-Place Concrete

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
a. Available dye colors for Architect’s selection.
2. Installation Procedures: Submit manufacturers recommended installation procedures.
3. Installer Qualifications: Submit data for company, principal personnel, experience, and training as specified.

B. Field Quality Control Submittals:
1. Dynamic Coefficient of Friction Test Reports: Submit field quality control reports of testing as specified.
2. Static Coefficient of Friction Test Reports: Submit field quality control report as specified.

C. Contract Closeout Submittals:
1. Submit instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use.
2. Include precautions against cleaning products and methods which may be detrimental to finishes and performance.

1.3 DEFINITIONS

A. Terminology: As defined by Concrete Polishing Council (CPC).

B. Polished Concrete: The act of changing a concrete floor surface, with or without aggregate exposure, to achieve a specified level of gloss.

C. Bonded Abrasive Polished Concrete: The multi-step operation of mechanically grinding, honing, polishing of a concrete floor surface with bonded abrasives to cut a concrete floor surface and to refine each cut to the maximum potential to achieve a specified level of finished gloss as defined by the CPC. This yields the most durable finish and requires the least amount of maintenance.

1.4 QUALITY ASSURANCE

A. Polisher Qualifications:

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1. Experience: Company experienced in performing specified work similar in design, products, and extent to scope of this Project; with a record of successful in-service performance; and with sufficient production capability, facilities, and personnel to produce specified work.
2. Supervision: Maintain competent supervisor who is at Project during times specified work is in progress, and is currently certified as Craftsman - Level I or higher by CPC.

B. Manufacturer Qualification: Approved by manufacturer to apply liquid applied products.

C. Walkway Auditor: Certified by CPC or NFSI to test bonded abrasive polished concrete floors for dynamic and static coefficient of friction according to ANSI B101.1 and B101.3.

D. Coefficient of Friction: Achieve following coefficient of friction by field quality control testing in accordance to the following standards:
1. ANSI B101.1 Static Coefficient of Friction - Achieve a minimum of .42 for level floor surfaces.
2. ANSI B101.3 Dynamic Coefficient of Friction - Achieve a minimum of .35 for level floor surfaces.

E. Field Mock-up: Before performing work of this Section, provide following field mock-up to verify selections made under submittals and to demonstrate aesthetic effects of polishing. Approval does not constitute approval of deviations from Contract Documents, unless Architect specifically approves deviations in writing.
1. Form, reinforce, and cast concrete slab for 10 foot square field mock-up.
2. Concrete shall be same mix design as scheduled for Project.
3. Perform placement and finishing work using same personnel as will place and finish concrete for Project.
4. Mock-up shall be representative of work to be expected.
5. Perform grinding, joint filling, honing, and polishing work as scheduled for Project using same personnel as will perform work for Project.
6. Approval is for following aesthetic qualities:
    a. Compliance with approved submittals.
    b. Compliance with specified aggregate exposure.
    c. Compliance with specified finished gloss and Distinctness of Image (DOI) level.
    d. Compliance with specified color.
7. Obtain Architect’s approval before starting work on Project.
8. Protect and maintain approved field mock-ups during construction in an undisturbed condition as a standard for judging completed work.

F. Pre-Installation of Concrete Conference: Prior to placing concrete for areas scheduled for polishing, conduct conference at Project to comply with requirements of applicable Division 01 Sections.
1. Required Attendees:
    a. Owner.
    b. Architect.
    c. Contractor, including supervisor.
    d. Concrete producer.
    e. Concrete finisher, including supervisor.
    f. Concrete polisher, including supervisor.
    g. Technical representative of liquid applied product manufacturers.
    h. Walkway auditor.
2. Minimum Agenda: Polisher shall demonstrate understanding of work required by reviewing and discussing procedures for, but not limited to, following:
    a. Tour field mock-up and representative areas of required work, discuss and evaluate for compliance with Contract Documents, including substrate conditions, surface preparations, sequence of procedures, and other preparatory work performed by other installers.
    b. Review Contract Document requirements.
    c. Review approved submittals and field mock-up.

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d. Review procedures, including, but not limited to:
   1) Section 03 3000 on cast-in-place concrete.
      a) Specific mix design.
      b) Specified curing methods/procedures.
      c) Projected 3, 10, and 28 day compression strength test related to specified aggregates exposure for finished floor and project phasing.
      d) Protection of concrete substrate during construction and prior to polishing process.
      e) Project phasing and scheduling for each step of grinding, honing and polishing operations including, but not limited to:
         i. Quality of qualified personnel committed to project.
         ii. Quality and size of grinders committed to project.
         iii. Proper disposal of concrete slurry and/or concrete dust.
      f) Details of each step of grinding, honing, and polishing operations.
         i. Application of color.
         ii. Application of liquid applied products.
         iii. Protecting polished concrete floors after polishing work is complete.

3. Reports: Record discussions, including decisions and agreements reached, and furnish copy of record to each party attending.

1.5 FIELD CONDITIONS

A. Damage and Stain Prevention: Take precautions to prevent damage and staining of concrete surfaces to be polished.
   1. Prohibit use of markers, spray paint, and soapstone.
   2. Prohibit improper application of liquid membrane film forming curing compounds.
   3. Prohibit vehicle parking over concrete surfaces.
   4. Prohibit pipe-cutting operations over concrete surfaces.
   5. Prohibit storage of any items over concrete surfaces for not less than 28 days after concrete placement.
   6. Prohibit ferrous metals storage over concrete surfaces.
   7. Protect from petroleum, oil, hydraulic fluid, or other liquid dripping from equipment working over concrete surfaces.
   8. Protect from acids and acidic detergents contacting concrete surfaces.
   9. Protect from painting activities over concrete surfaces.

B. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting liquid applied product application.

PART 2 – PRODUCTS

2.1 LIQUID APPLIED PRODUCTS

A. Lithium Silicate Densifier: A chemical treatment used to enhance the grinding and polishing process of architectural polished concrete surfaces.

B. Micronized Water Borne or Acetone Dye: A translucent dye. Acid stains are not acceptable. Color to be selected by Architect.

C. Stain and Wear Protection: A lithium fortified finish for deep penetration, increased surface hardness and superior reflectivity on concrete.

2.2 ACCESSORIES

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A. Repair Material: A product that is designed to repair cracks and surface imperfections. The specified material must have sufficient bonding capabilities to adhere after the polishing to the concrete surface and provide abrasion resistance equal to or greater than the surrounding concrete substrate. All repair materials shall be compatible with the liquid applied products.

B. Grout Material: A thin mortar used for filling spaces. Acceptable products shall be:
   1. Epoxy, urethane, polyurea, or polyaspartic resins.
   2. Latex or acrylic binders mixed with cement dust from previous grinding steps.
   3. Silicate binders mixed with cement dust from previous grinding steps.

C. Protective Cover: Non-woven, puncture and tear resistant, polypropylene fibers laminated with a multi-ply, textured membrane, not less than 18 mils in thickness.

D. Joint Filler: A semi-rigid polyurea joint sealant with 100% solids. Metger/McGuire Spal-Pro RS 65 or approved equal.
   1. Clear color unless otherwise required after field mock-up is reviewed.
   2. Hardness, Shore “A” at 70 deg F, ASTM D-2240, Results A64-69.
   3. Tensile elongation at 70 deg F, ASTM D-412, Results 162%.
   4. Tensile strength at 70 deg F, ASTM D-412, Results 393 psi.

2.3 POLISHING EQUIPMENT

A. Field Grinding and Polishing Equipment:
   1. A multiple head, counter rotating, walk behind or ride on machine, of various size and weights, with diamond tooling affixed to the head for the purpose of grinding concrete. Excludes janitorial maintenance equipment.
   2. If dry grinding, honing, or polishing, use dust extraction equipment with flow rate suitable for dust generated, with squeegee attachments.
   3. If wet grinding, honing, or polishing, use slurry extraction equipment suitable for slurry removal and containment prior to proper disposal.

B. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines which produces same results, without noticeable differences, as field grinding and polishing equipment.

C. Burnishing Equipment: High speed walk-behind or ride-on machines capable of generating 1000 to 2000 revolutions per minute with sufficient head pressure of not less than 20 pounds to raise floor temperature by 20 degrees F.

D. Diamond Tooling: Abrasive tools that contain industrial grade diamonds within a bonded matrix (such as metallic, resinous, ceramic, etc.) that are attached to rotating heads to refine the concrete substrate.
   1. Bonded Abrasive: Abrasive medium that is held within a bonding that erodes away to expose new abrasive medium as it is used.
   2. Metal Bond Tooling: Diamond tooling that contains industrial grade diamonds with a metallic bonded matrix that is attached to rotating heads to refine the concrete substrate. These tools are available in levels of soft, medium, and hard metallic matrices that are matched with contrasting concrete substrates (i.e. hard matrix/soft concrete, medium matrix/medium concrete, soft matrix/hard concrete) and are typically used in the grinding and early honing stages of the polishing process.
   3. Resin Bond Tooling: Diamond tooling that contains industrial grade diamonds within a resinous bonded matrix (poly-phenolic, ester-phenolic, thermoplastic-phenolic) that is attached to rotating heads to refine the concrete substrate. Resin bond tooling does not have the soft/medium/hard characteristics of metal bond tooling and are typically used for the later honing and polishing stages of the polishing process.

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4. Hybrid Tooling: Diamond tooling that combines metal bond and resin bond that has the characteristics of both types of tooling. These types of tools are typically used as either transitional tooling from metal bond tools to resin bond tools or as a first cut tool on smooth concrete surfaces.
5. Transitional Tooling: Diamond tooling that is used to refine the scratch pattern of metal bond tooling prior to the application of resin bond tooling in an effort to extend the life of resin bond tooling and to create a better foundation for the polishing process.
6. Abrasive Pad: An abrasive pad, resembling a typical floor maintenance burnishing pad, that has the capability of refining the concrete surface on a microscopic level that may or may not contain industrial grade diamonds. These pads are typically used for the maintenance and/or restoration of previously installed polished concrete flooring.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Acceptance of Surfaces and Conditions:
   1. Examine substrates to be polished for compliance with requirements and other conditions affecting performance.
   2. Concrete Finished Floor Flatness according to applicable Division 03 Section on cast-in-place concrete.
   3. Concrete curing methods according to applicable Division 03 Section on cast-in-place concrete.
   4. Concrete Compression strength per according to applicable Division 03 Section on cast-in-place concrete.

B. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.

C. Starting work within a particular area will be construed as acceptance of surface conditions.

3.2 PREPARATION

A. Cleaning concrete surfaces to receive polished and dyed concrete.
   1. Prepare and clean concrete surfaces.
      a. Clear surfaces of any debris and construction materials.

   2. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, paint splatter, and other contaminants incompatible with liquid applied products and polishing.

B. Repair concrete surfaces to receive polished and dyed concrete in accordance with the manufacturer's recommendations.
   1. Verify that substrate is smooth, level, at required finish elevation, and without more than 1/8" in 10'-0" variation from level or slopes shown on the Drawings.
   2. Clean cracks, divots, chips and holes in surface.
   3. Broom clean or vacuum the surfaces to be repaired and polished.
   4. Fill and smooth cracks, divots, chips and holes with repair material.
   5. Do not fill expansion joints, isolation joints, or other moving joints.
   6. Prohibit traffic until repair material is cured and ready to be polished and dyed.

3.3 JOINT FILLING

A. Prepare the joints and Install joint filling materials in accordance with the manufacturer's recommendations. Joint filler shall not be installed prior to 30 days after slab placement.

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B. All joints shall be filled after the initial grinding pass but before any subsequent grinding continues.
   1. Should joint filling be required after the polishing process, apply tape or soap to the edge of the concrete to keep the joint filler from staining the concrete.
   2. Fill joints in one pass, 1/2" deep over closed-cell compressible backer rod.

3.4 COLORING CONCRETE FLOORS

A. Dye Application:
   1. Auto scrub the surface completely clean and remove any remaining dust. Allow the surface to dry completely before application.
   2. Apply using methods and techniques required by manufacturer to produce finish matching approved field mock-ups. Sequence installation with honing / polishing / burnishing and allow it to dry in accordance with the manufacturer's recommendations before proceeding. Apply dye immediately prior to final honing step, unless otherwise indicated by the manufacturer's recommendations.
   3. Maintain wet edge, working newly applied solution into edges of adjacent wet edges of previously treated surfaces.
   4. Maintain consistent saturation throughout application. Apply dye to rejection.
   5. Avoid splashing, dripping, or puddling of solution on adjacent substrates.
   6. Remove all rejected dye from the surface using an auto-scrubber.

3.5 POLISHED CONCRETE FLOOR FINISH

A. Final Polished Concrete Floor Finish:

   1. Aggregate Exposure Class B – Fine / Sand Aggregate Finish: Remove not more than 1/16 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying fine aggregate with no, or small amount of, medium aggregate at random locations. Also referred to as a "salt and pepper" finish.

   2. Finished Gloss Level 1 – Low Gloss Appearance – 400/800 Grit: Determine the gloss level by incorporating a reflective sheen reading between 30 to 40 and Distinctness of Image (DOI) no less than 10 points below the measured gloss level prior to the application of stain and wear protection.

3.6 POLISHING CONCRETE FLOORS

A. Perform all polishing procedures to ensure a consistent appearance from wall to wall.

B. Grinding:
   1. Use grinding equipment with metal or semi-metal bonded tooling and sufficient size equipment.
   2. Begin grinding with either 18/20 or 30/40 grit diamond tooling (depending on the project conditions) to meet specified aggregate exposure class.
   3. Make sequential passes with each pass perpendicular to previous pass using finer grit tool with each pass, up to 100/120 grit metal bonded tooling.
      a. Make no fewer than three grit steps between the initial grind and the final 100/120 grind.
      b. Achieve maximum refinement with each pass before proceeding to finer grit tools.
      c. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.
   4. After the 60/80 grit grinding, treat the surface imperfections.

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a. Mix patching compound or grout material with dust created by grinding operations, grout mix, cement slurry, epoxies, manufacturer's tint, sand or a combination of the above to closely match color of adjacent concrete surfaces.
b. Fill surface imperfections including, but not limited to, holes, surface damage, small and micro cracks, air holes, pop-outs, and voids with grout to eliminate micro pitting in finished work.
c. Work compound and treatment until color differences between concrete surface and filled surface imperfections are not reasonably noticeable when viewed from 10 feet away under lighting conditions that will be present after construction.
d. Use grinding equipment and appropriate grit and bond diamond tooling.
e. Apply grout, forced into the pore structure of the concrete substrate, to fill surface imperfections.

f. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.

5. Continue grinding until aggregate exposure matches approved field mock-ups.

C. Honing:
1. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.
2. Hone concrete in one direction starting with 120/140 grit resin bonded diamond tooling and increasing to 200 grit making as many sequential passes as required to remove scratches, each pass perpendicular to previous pass, up to 400 grit resin bonded diamond tooling reaching maximum refinement with each pass before proceeding to finer grit tooling.
3. Apply dye in accordance with section 3.4 of this specification.
4. Apply liquid densifier and allow it to dry in accordance with the manufacturer's recommendations before proceeding.
5. Hone concrete in one direction with 400 grit resin bonded diamond tooling and make as many sequential passes as required to remove scratches, each pass perpendicular to previous pass, reaching maximum refinement with each pass before proceeding.

D. Burnishing (Finished Gloss Level 1 – Low Gloss Appearance – 400/800 Grit):
1. Dry mop floor clean to remove all debris after each pass.
2. Burnish concrete in one direction with 400 grit diamond impregnated pad and make as many sequential passes as required, each pass perpendicular to previous pass, reaching maximum refinement with each pass before proceeding.
3. Apply stain and wear protection and allow it to dry in accordance with the manufacturer's recommendations before proceeding.
4. Burnish concrete in one direction with 400 grit diamond impregnated pad and make as many sequential passes as required, each pass perpendicular to previous pass, reaching maximum refinement with each pass before proceeding.
5. Apply stain and wear protection and allow it to dry in accordance with the manufacturer's recommendations before proceeding.
6. Burnish concrete in one direction with 800 grit diamond impregnated pad and make as many sequential passes as required, each pass perpendicular to previous pass. Burnish to uniform reflective sheen matching approved field mock-up.

3.6 FIELD QUALITY CONTROL

A. Field Testing: Installing contractor shall engage a qualified walkway auditor, under review of the Project Inspector, to perform field testing and submit reports for record to determine if polished concrete floor finish complies with the following:
1. ANSI B101.1 for specified static coefficient of friction.
2. ANSI B101.3 for specified dynamic coefficient of friction.

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3. ASTM D523 for specified gloss level (Reflective Sheen Reading).
4. ASTM D5767 for specified gloss level (Distinctness of Image Reading).

B. Vapor Testing Concrete Floors (prior to commencing work of this section):
1. Moisture Vapor Transmission Rate:
a. Test Method: Perform anhydrous calcium chloride test according to ASTM F 1869.
b. Acceptable Results: Not more than 5 pounds per 1000 square feet in 24 hours.

2. Relative Humidity:
a. Test Method: Perform relative humidity test using in situ probes according to ASTM F 2170.
b. Acceptable Results: Not more than 80 percent.

3.7 CLOSEOUT ACTIVITIES

A. Maintenance Training: CPC Craftsman shall train Owner's designated personnel in proper procedures for maintaining polished concrete floor.

3.8 PROTECTION

A. Covering: After completion of polishing, protect polished floors from subsequent construction activities with protective covering.

END OF SECTION 03 3540

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SECTION 05 5000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide miscellaneous metal work shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 09 9100: Field painting of steel members.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data:
a. Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
b. Submit manufacturers recommended installation procedures.
2. Shop Drawings: Submit shop drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades.

1.3 QUALITY ASSURANCE

A. Perform shop and/or field welding required in connection with the work of this Section in strict accordance with pertinent recommendations of the American Welding Society.

B. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedures" and CBC Section 2204A.1.

C. Codes and Standards: Comply with provisions of the following: California Building Code, 2025 Edition.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Comply with following standards, as pertinent, unless otherwise noted in the documents.
1. Steel Sections: ASTM A36.
2. Steel Tubing: ASTM A500, Grade C cold-formed structural tubing.
3. Steel Pipe: ASTM A53, Type S, Grade B, standard weight or extra-strong as noted in the plans.
4. Bolts, Nuts, and Washers: ASTM A325, Type 1, galvanized to ASTM A153 where connecting galvanized components.
5. Welding Materials: AWS D1.1; type required for materials being welded.

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7. Galvanized Steel Sheet: ASTM A653; G90 coating.
8. Steel Sheet: ASTM A1008; uncoated, cold rolled commercial steel, exposed or ASTM A879 electrolytic zinc coating over ASTM A 1008, steel sheet substrate.
9. Stainless Steel Sheet: ASTM A666, Type 304; stretcher-leveled.

2.2 FASTENERS

A. General:
   1. For exterior use and where built into exterior walls, provide zinc-coated fasteners.
   2. Provide fasteners of type, grade, and class required for the particular use.

B. Bolts, Nuts, and Washers: ASTM A325, Type 1, galvanized to ASTM A153 where connecting galvanized components.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

2.4 FINISHES

A. Primer: 10-99 by Tnemec or No. 5269 by Rustoleum.

B. Provide zinc coating for those items indicated or specified to galvanized, as follows:
   1. ASTM A153 for galvanizing iron and steel hardware.
   2. ASTM A123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strips 1/8" thick and heavier.
   3. ASTM A386 for galvanizing assembled steel products.
   4. ASTM A535 for galvanizing sheet steel.

C. For repair of galvanizing, use a high zinc-dust content paint complying with MIL-P-21035.

2.5 FABRICATION

A. Except as otherwise shown on the Drawings or the approved Shop Drawings, use materials of size, thickness, and type required to produce reasonable strength and durability in the work of this Section.

B. In fabricating items which will be exposed to view, limit materials to those which are free from surface blemishes, pitting, rolled trade names, and roughness.

C. Fabricate with accurate angles and surfaces which are true to the required lines and levels, forming exposed connections with hairline joints, and using concealed fasteners wherever possible.

D. Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use. Cut, reinforce, drill, and tap miscellaneous metal work as required to receive finish hardware and similar items.

E. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

F. Curved work shall be evenly sprung.

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2.6 FABRICATED ITEMS

A. Rough Hardware: Provide bent or otherwise custom fabricated bolts, plates, anchors, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting work, and for anchoring or securing work to concrete or other structures.
   1. Provide galvanized rough hardware at exterior conditions.

B. Miscellaneous Framing and Supports: Provide miscellaneous framing and supports not a part of the structural steel framework, as required to complete the work.
   1. Fabricate miscellaneous units to shapes, sizes, and profiles indicated, or if not indicated, of required dimensions to receive adjacent work. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware and similar items.
   2. Provide galvanized framing and supports at exterior conditions.

C. Steel Handrails, Guards, and Railings: Provide round pipe or square tubing as indicated on the Drawings.
   1. Round Pipe: 1-1/2" nominal diameter standard weight galvanized steel pipe, 0.145" wall thickness.
   2. Square Tubing: 1-1/2" galvanized steel square structural tubing, 0.1875" wall thickness.
   3. Wall Brackets: No. 377/378 by Julius Blum, or No. 1703-2 by R&B Wagner, with bracket filler for either gypsum board or plaster.
   4. Fabrication:
      a. Provide flush fittings with joints welded and ground smooth and flush. Weld vertical supports to horizontal members in same manner as fittings.
      b. Remove burrs from all exposed cut edges.
      c. Miter or radius all joints as required. Form elbow bends and wall returns to uniform radius, free from buckles and twists, with smooth finish surfaces, or use prefabricated bends.
      d. Provide wall returns at ends of wall mounted handrails to with 1/8" of wall.
      e. Close exposed ends by welding 3/16" minimum thickness steel plate in place or with prefabricated fittings.
      f. Provide galvanized steel sleeves for concrete embedment where indicated.
      g. Secure ends of members butted to vertical surfaces with galvanized steel flanges.
      h. Secure handrails to walls with brackets spaced at 5'-0" on center maximum.
      i. Provide vertical posts at the spacing indicated, but not more than 5'-0" on center.
      j. Welding: Accurately miter and cope intersections of posts and rails and weld all around. Thoroughly fuse without undercutting or overlap. Remove spatter, grind exposed welds and contour surfaces to match those adjacent.
      k. Provide pressure relief holes at closed ends.

2.7 SHOP PAINTING

A. Surface Preparation: Prepare ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
   1. Exteriors (SSPC Zone 1B): SSPC-SP6, Commercial Blast Cleaning.
   2. Interiors (SSPC Zone 1A): SSPC-SP3, Power Tool Cleaning.

B. Cleaning: Clean ferrous and galvanized metal surfaces with proper solvents to remove all grease and other foreign matter which will hinder and/or prevent proper finishing and installation.

C. Application: Apply 1 coat of shop primer to the dry film thickness recommended by the manufacturer to surfaces of metal fabrications except those which are indicated to be embedded in concrete or masonry and in

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compliance with requirements of SSPC-PA1, Paint Application Specification No. 1, for shop painting.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.3 INSTALLATION

A. General:
1. Set work accurately into position, plumb, level, true, and free from rack.
2. Anchor firmly into position.
3. Where field welding is required, comply with AWS recommended procedures of manual-shielded metal-arc welding for appearance and quality of weld and for methods to be used in correcting welding work.
4. Grind exposed welds smooth, and touch up shop prime coats.
5. Do not cut, weld, or abrade surfaces which have been hot-dip galvanized after fabrication and which are intended for bolted or screwed field connections.

B. Primer Repair: Immediately after erection, clean the field welds, bolted connections, and abraded areas of shop priming. Paint the exposed areas with same material used for shop priming.

C. Galvanizing Repair: Repair all damage to galvanizing as a result of fabrication, handling, and installation, with 2 coats of cold galvanizing paint in accordance with the manufacturer's written instructions.

D. Pipe Railings and Handrails: Unless otherwise indicated or approved by the Architect:
1. Secure to wall with approved fasteners into solid blocking.

END OF SECTION 05 5000

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SECTION 05 5840 - STAINLESS STEEL FABRICATION

PART 1 - GENERAL

1.1 SUMMARY

A. Provide the materials and fabrication for stainless steel items in the work, excluding the work in Section 11 4000, where shown on the Drawings, or as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 06 4000: Rough openings for equipment and accessories in cabinets.
3. Section 11 4000: Food service equipment.
4. Section 22 0000: Final plumbing connections of equipment and accessories.
5. Section 26 7000: Final electrical connections of equipment and accessories.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop Drawings: Submit shop drawings showing details of layout, installation, anchorage, and interface with the work of other trades.
4. **Utility Service Connections:** Deviations from utility requirements indicated on the Drawings shall be clearly noted and coordinated with the trades involved.

1.3 QUALITY ASSURANCE

A. Except as otherwise specifically approved in writing by the Architect, manufacture and install all materials of this Section in strict compliance with at least the minimum requirements of:
1. American Society for Testing and Materials (ASTM);
2. American Society of Mechanical Engineers (ASME);
3. National Sanitation Foundation (NSF);
4. All governmental agencies having jurisdiction.

1.4 SPECIAL WARRANTY

A. In addition to the warranty requirements of the Contract Documents, submit 2 original copies of the manufacturer's **2-year warranty** on all materials and workmanship.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide only new materials, of the highest grade available, free from defects and imperfections, of recent manufacture, and with the following attributes except as may be otherwise approved by the Architect.

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B. Bolts, Screws, and Rivets:
   1. Wherever possible, provide equipment and connections with exposed surfaces free from bolt heads, screw heads, and rivets.
   2. Wherever bolts are used to fasten trim to paneling of counters, cabinets, and similar equipment, and to fasten tops of counters to their framing, use corrosion-resisting metal of the same alloy composition as the metal to which they are fastened.
   3. When iron bolts or screws are authorized to be used, provide a suitable metallic coating for protection against corrosion.
   4. Wherever threads of bolts or screws might come into contact with a wiping cloth, cap the threads with a suitable lock washer and chromium plated or bronze acorn nut.

2.2 MATERIALS

A. Stainless steel:
   1. Provide US Standard Gage 18-8, type 302, maximum carbon 0.012%, with No. 4 finish;
   2. Where spans exceed 30" in the least direction, provide 16 gage material;
   3. Where spans exceed 60" in the least direction, provide 14 gage material;
   4. Finish welds to match the No. 4 finish.

B. Welding and Soldering:
   1. Shop weld or solder all seams and joints as the nature of the material used may require;
   2. Weld all materials 18 gage and heavier.

C. Metal Tops:
   1. Provide metal tops of one piece welded construction, reinforced on the underside with galvanized steel channels welded in place so tops can support heavy weights without deflection;
   2. Provide cross braces at not closer than 30" on center.

D. Except as otherwise detailed or specified, make rolled edges approximately 1-3/8" in diameter, with corners bullnosed, ground, and polished.

E. Corners:
   1. Provide radius bends in all horizontal and vertical corners, coved at intersections, unless otherwise detailed or specified;
   2. Make rounded and coved corners, and radius bends, 1/2" radius or more.

F. Legs and Cross Rails:
   1. Fabricate from 16 gage 1-5/8" diameter stainless steel tubing unless otherwise detailed or specified;
   2. At cross rails, make all welds continuous and grind smooth; tack welds are not acceptable;
   3. Fit the bottoms of legs at the floor with a stainless steel bullet-type foot having not less than 2" adjustment;
   4. Fasten legs to equipment: To metal tops with the same type enclosed gussets as specified above, but welded to stainless steel channels 14 gage or heavier.
   5. Stainless steel adjustable feet:
      a. Provide 302 or 304 stainless steel exterior on not less than 1-1/2" diameter threaded cold rolled steel rod;
      b. Provide not less than 2" adjustment;
      c. Weld the assembly, and provide seismic anchorage approved by the Architect and Division of the State Architect.

G. Shelves:
   1. At fixtures with enclosed bases, turn up shelves at back and sides, and feather slightly to assure a tight fit

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to enclosure panels;

2. At fixtures with open bases, notch shelves a full 90̊ and weld tightly to leg with tight joints at all intersections of shelf and leg.

H. Closures: Fill the ends of all work by forming the metal or welded sections if necessary, to finish the entire rear of the fixture or similar item flush to walls and adjoining fixtures.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine areas and conditions under which the work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION, GENERAL

A. Except as modified by requirements of governmental agencies having jurisdiction, install in accordance with recommendations of the manufacturer as approved by the Architect.

B. Coordinate with adjacent trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.3 SEISMIC RESTRAINT

A. Where anchorage details are not shown on the drawings or in the guidelines, the field installation shall be subject to the approval of the Architect and the DSA Field Engineer.

3.4 CLEANING UP

A. In addition to other stipulated requirements for cleaning, completely remove finger prints and traces of soil from the surfaces of all work of this Section, using only those cleaning materials recommended for the purpose by the manufacturer of the material being cleaned.

END OF SECTION 05 5840

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SECTION 06 1100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Provide lumber, construction panels, structural composite wood, nails, bolts, screws, framing anchors and other rough hardware, and other items needed, and perform rough carpentry for the construction shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements for the following:
a. Framing anchors.
b. Preservative treatment.
2. Installation Procedures: Submit manufacturers recommended installation procedures.

B. Machine Nail Samples: Contractor shall allow the Inspector to take random samples from actual machine nail containers proposed for use on the project. Samples shall be reviewed and accepted prior to any machine nailing. Nails sampled shall meet the requirements for machine nailing indicated on the Drawings.

1.3 QUALITY ASSURANCE

A. Codes and Standards:
1. All material and workmanship shall comply with CBC Chapter 23 and ANSI/AWC NDS 2021.
2. **Lumber standards:** DOC PS-20-05 American Softwood Lumber Standard, with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review. Factory mark all lumber indicating the specie and grade of each piece.
3. **Inspection Agencies:** All lumber shall be graded in accordance with Standard Grading Rules for West Coast Lumber, No. 17 by West Coast Lumber Inspection Bureau (WCLIB), or Western Lumber Grade Rules, latest edition by Western Wood Products Association (WWPA).
4. **Plywood Panel Standards:** DOC PS–1-09 Construction and Industrial. For products not manufactured under PS-1 provisions, with American Plywood Association (APA) Performance Standard and Policies for Structural-Use Panels, Form No. E445. Plywood used for structural purposes shall be marked "APA W/EXT GLUE" and shall be span-rated sheathing. Factory-mark each plywood panel with APA trademark evidencing compliance with grade requirements.
5. **Preservative Treatment:** Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Rejection:
1. Below-grade material shall not be used as load-carrying members which have been designed for specified allowable stresses and acceptable safety factors.
2. Any material which falls below grade shall be rejected for load-carrying use.

C. Prefabricated (off-site built) wall framing:

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1. Where fabrication of structural, load-bearing or lateral load-resisting members or assemblies is being conducted “off-site”, special inspections of the fabricated items shall be performed during fabrication. Inspection shall be periodic unless otherwise deemed necessary for continuous inspection.
2. All costs associated with “off-site” wall framing will be paid directly by the Owner to the Project Inspector or Lab of Record, but these costs shall be invoiced to the Contractor by the Owner and withheld from payments and/or retention.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01 6600.

B. Protection:
1. Deliver the materials to the job site and store, in a safe area, out of the way of traffic, and shored up off the ground surface.
2. Identify framing lumber as to grades, and store each grade separately from other grades.
3. Protect metals with adequate waterproof outer wrapping.
4. Use extreme care in off-loading of lumber to prevent damage, splitting, and breaking of materials.

PART 2 - PRODUCTS

2.1 LUMBER

A. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by DOC PS-20-05, for moisture content specified for each use.
1. Provide dressed lumber, S4S, unless otherwise indicated.
2. Provide seasoned lumber with 19% maximum moisture content at time of dressing and shipment, and at time of use, unless otherwise indicated.

B. Slope of grain of lumber used in tension members shall not exceed 1:8 slope.

C. Framing lumber shall be No. 1 Douglas Fir, unless otherwise indicated on the drawings.

D. Where wood member are in contact with masonry or concrete, use No. 1 Douglas Fir pressure treated with an approved factory preservative treatment as specified in this Section.

E. **ALL 3X AND LARGER MATERIAL SHALL BE "FREE OF HEART CENTER".**

F. Fascia: Provide Hem-Fir material at all finished fascia boards and at fascia boards covered with metal fascia and trim.

2.2 CONSTRUCTION PANELS

A. Plywood: Exterior Grade with exterior glue, graded to conform to Structural Plywood DOC PS-1-22.

B. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA A-C PLUGGED and SANDED INT with exterior glue, 3/4" thick.

C. Roof Sheathing: APA Rated Sheathing, C-D, Exposure 1; thickness and span index as indicated.

D. Wall Sheathing: APA Rated Sheathing, C-D, Struct I, Exposure 1; thickness and span index as indicated.

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2.3 ACCESSORIES AND OTHER MATERIALS

A. Building Paper: Kraft paper; ASTM D227.

B. Sheet Metal Framing Anchors: Shall be as noted on the drawings.

C. Machine Bolts: ASTM A307.

D. Lag Bolts: ASME B18.2.1.

E. Nails:
1. Use **common nails** except as otherwise noted.
2. Comply with ASTM F1667. Minimum dimensions shall be as follows:

Pennywt.	Shank Dia.	Head Dia.	Length
8d	0.131" ± .004"	0.281" ± 10%	2.5" ± 1/16"
10d	0.148" ± .004"	0.312" ± 10%	3.0" ± 3/32"
16d	0.162" ± .004"	0.344" ± 10%	3.5" ± 3/32"

3. All nails for pressure treated or fire-retardant lumber shall be hot-dipped zinc-coated galvanized. Nails with other types of galvanizing may be used if pre-approved by the enforcement agency.

F. Fasteners and Anchors: Size, type, material as indicated and as recommended by applicable standards; unfinished, except as specified below.
1. In Preservative Treated Wood:
a. Use Categories UC2 and UC3B: Hot-dip zinc coating, types and weights in accordance with the treated wood or anchor manufacturer; ASTM A153 or F2329.
b. Use Category UC4A: Type 316L stainless steel.
2. In Exposed Exterior Conditions: Type 316L stainless steel.
3. In Concrete or Masonry: Mechanically deposited zinc coating; ASTM B695, Class 55 minimum.

G. Connectors and Hangers: Fabricate from steel with minimum ASTM A653 G90 zinc coating, thickness to suit framing conditions.
1. At Preservative Treated Wood:
a. Use Categories UC2 and UC3B: Hot-dip zinc coating; ASTM A653, G185 minimum.
b. Use Category UC4A: Type 316L stainless steel.
2. At Exposed Exterior Conditions: Type 316L stainless steel.

H. Construction Adhesives: Comply with VOC requirements of California Green Building Standards Code, Section 5.504.4.1.

2.5 FACTORY PRESERVATIVE TREATMENT

A. Lumber Above Grade: AWPA U1-14, Use Category UC2, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber in contact with masonry or concrete.
3. Treat lumber in other locations as indicated.

B. Lumber Exposed to Weather: AWPA U1-14, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.

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1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber exposed to weather.

C. Lumber in Contact with Soil: AWPA U1-14, Use Category UC4A, Commodity Specification A using waterborne preservative to 0.4 lb/cu ft retention.
1. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
2. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

D. Plywood Above Grade: AWPA U1-14, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
1. Kiln dry plywood after treatment to maximum moisture content of 15 percent.
2. Treat plywood in contact with masonry or concrete.
3. Treat plywood in other locations as indicated.

2.6 FIRE RETARDANT TREATED WOOD

A. Interior Type A: AWPA U114, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
1. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
2. Treat rough carpentry items as indicated.
3. Do not use treated wood in applications exposed to weather or where the wood may become wet.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 COMPLIANCE

A. Do not permit materials not complying with the provisions of this Section to be brought onto or to be stored at the job site.

B. Promptly remove non-complying materials from the job site and replace with materials meeting the requirements of this Section.

3.3 WORKMANSHIP

A. Produce joints which are tight, true, and well nailed, with members assembled in accordance with the Drawings and with pertinent codes and regulations.

B. Set carpentry work to required levels and lines, with members plumb and true to line and cut and fitted.

C. Lumber Selection:

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1. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing, and will allow making of proper connections.
2. Cut out and discard defects which render a piece unable to serve its intended function.
3. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

D. **Do not shim any framing component unless specifically indicated on the drawings.**

3.4 GENERAL FRAMING

A. General:
1. In addition to framing operations normal to the fabrication and erection indicated on the Drawings, install wood blocking and backing required for the work of other trades.
2. Set horizontal and sloped members with crown up.
3. Do not notch, cut, or bore members for pipes, ducts, or conduits, or for other reasons except as shown on the Drawings or as specifically approved by the Architect.

B. Bearings:
1. Make bearings full unless otherwise indicated on the Drawings.
2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support.
3. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

C. Fire Blocks and Draft Stops: CBC Section 718.
1. **General:** In combustible construction, firestopping and draft stopping shall be installed to cut off all concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a roof or attic space, and shall subdivide attic spaces, concealed roof spaces and floor-ceiling assemblies. The integrity of all fire and draft stops shall be maintained.
2. **Fire Stops:** Provide firestopping in the following locations:
   a. In concealed spaces of stud walls and partitions, including furred spaces, at the ceiling and floor levels and at 10'-0" intervals along the length of the wall.
   b. In fire sprinklered buildings having furred spaces without sprinklers, provide minimum 1/2" thick plywood fire stop so spaced (horizontally or vertically) to contain no more than 51 cubic feet of area. Coordinate with fire sprinkler installer.
   c. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings;
   d. In concealed spaces between stair stringers at the top and bottom of the run and between studs along and in line with the run of stairs if the walls under the stairs are unfinished;
   e. In openings around vents, pipes, ducts, chimneys, fireplaces and similar openings which afford a passage for fire at ceiling and floor levels, with noncombustible materials.
3. **Draft Stops:** Provide draft stopping at locations indicated on the drawings.

D. Furring, Stripping, Grounds, and Backing:
1. All wood furring, stripping, blocking, bucks and grounds shall be furnished and installed by the Contractor where required for support or backing for other materials whether shown or not on the drawings and/or these specifications. All pipes and ducts shall be furred in wherever shown.
2. Provide horizontal and vertical backing and blocking for nailing all joints at walls, parapets, ceilings, soffits, etc. finish materials shall be provided whenever needed throughout the building. Horizontal and vertical backing shall also occur at counter heights, wainscot heights and for securing all fixtures, cabinet work, shelving and all other items that require support from the wall.
3. Furnish and set all wood grounds for plastering, sheet metal and other trades. Grounds shall be of proper size and spacing for the installation of work as noted under the various headings.

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4. All blocks, grounds, etc., which are embedded in concrete shall be dipped in creosote after being cut to size and after nails are driven which are to hold them in the concrete.

E. Plywood Installation:
1. Placement:
   a. Place plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise shown on the Drawings.
   b. Center joints accurately over supports, unless otherwise shown on the Drawings.
   c. Stagger panel end joints.
2. Protect plywood from moisture by use of waterproof coverings until the plywood in turn has been covered with the next succeeding component or finish.
3. Installation of plywood shall comply with the requirements of CBC and the APA. If in conflict conform to CBC.

F. Nailing:
1. Use only common wire nails or spikes of the dimension shown on CBC Table 2304.10.1 - Fastening Schedule, except where otherwise specifically noted on the Drawings.
2. For conditions not covered in the Nailing Schedule provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike, provided, however, that 16d nails may be used to connect two pieces of 2" (nominal) thickness.
3. Nail without splitting wood.
4. Pre-bore as required.
5. Remove split members and replace with members complying with the specified requirements.

G. Bolting:
1. Drill holes 1/32" larger in diameter than the bolts being used.
2. Drill straight and true from one side only.
3. Do not bear bolt heads on wood, but use washers under head and nut where both bear on wood, and use washers under all nuts.

H. Lag Screws: Prebore holes to 40% to 70% of shank diameter at threaded portion, enlarging holes to shank diameter for length of shank.

I. Wood Screws:
1. Preboring is not required but shall not exceed 7/8 x shank diameter and 7/8 x diameter of the screw at the root of the thread.
2. Do not hammer screws into holes, soap may be used to facilitate insertion.

J. Sills and Plates:
1. Install pressure preservative-treated lumber for plates and sills in conformance with CBC Section 2304.10.5.
2. Bolt to foundations and slabs. Level sills with dry-pack, washers placed, and nuts tightened to level bearing.
3. Pack space between sill and concrete with dry-pack cement grout.

END OF SECTION 06 1100

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SECTION 07 2100 - BLANKET INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Provide building insulation where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturers recommended installation procedures.

PART 2 - PRODUCTS

2.1 BUILDING INSULATION MATERIALS

A. Fiberglass Insulation: Inorganic (non-asbestos) fibers formed with binders into resilient flexible blankets or semi-rigid batts; manufacturer's standard lengths and widths as required to coordinate with spaces to be insulated.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
1. Certain-teed Products Corp.
2. Johns Manville
3. Owens-corning Fiberglass Corp.
4. United States Gypsum Co.
5. FiberTek Insulation.
6. Substitutions: Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

C. Batt Width: Provide widths as required for flanged staple supported, nominal 16" or 24" for wood studs, or friction fit full 16" or 24" for metal studs, or cut to fit as required in other widths.

D. Support: Provide manufacturers recommended supporting systems as required for each installation. All insulation shall be continuously supported in a manner to permanently hold the insulation in place.
1. Wood framing shall be friction fit supported.
2. Metal framing shall be friction fit supported.
2. Support with RSA polypropylene biaxially oriented netting, 2-1/4" x 1-1/8" mesh.

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2.2 INSULATION TYPES

A. Thermal Fiberglass Batts: ASTM C665, Type I.
1. Exterior walls concealed; R-19.
2. Exterior roof/ceiling concealed; R-30.
3. Flame spread - 25, smoke developed - 450; ASTM E84.
4. Combustion Characteristics: Pass; ASTM E136.
5. Recycled Content: Certified to contain minimum of 20% post-consumer and 5% pre-consumer recycled glass product, on average of manufacturer's products.

B. Sound Attenuation Fiberglass Batts: ASTM C665, Type I, full wall thickness.
1. Interior wall stud cavities, friction fit.
2. Flame spread - 25, smoke developed - 450; ASTM E84.
3. Combustion Characteristics: Pass; ASTM E136.
4. Recycled Content: Certified to contain minimum of 20% post-consumer and 5% pre-consumer recycled glass product, on average of manufacturer's products.

C. Mineral Wool Sound Attenuation Fire Batts: ASTM C665, Type I, and ASTM E-136.
1. Application: Where indicated in the plans.
2. Sound Attenuation Fire Batts by Owens-Corning, Thermafiber Sound Attenuation Fire Blankets by Certainteed, Sound Attenuation Fire Batt (SAFB) by Johns Manville or approved equivalent.
3. Non-combustible per NFPA Standard 220, ASTM E136; Class A rated interior finish, NFPA 101.

2.3 ACCESSORIES

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

B. Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Remove, or protect against, projections in construction framing which may damage or prevent proper insulation.

3.2 INSTALLATION

A. Install the work of this Section in strict accordance with the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position.

B. Between Studs:
1. Install insulation tight in spaces and tight to exterior side of mechanical and electrical services with the plane of the insulation.
2. Leave no gaps or voids.
3. Trim insulation neatly to fit spaces.

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4. Use wire or metal straps to hold insulation in place.

C. Between Wood Roof Rafters:
1. Install insulation tight in spaces and tight to exterior side of mechanical and electrical services with the plane of the insulation.
2. Leave no gaps or voids.
3. Trim insulation neatly to fit spaces.
4. Use wire or metal straps to hold insulation in place.

D. Between Wood I Joists: Wire up insulation under roof decks by running 16 or 18 gauge wire diagonally or perpendicular to the insulation every 18" to 24".

END OF SECTION 07 2100

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SECTION 07 2700 - AIR BARRIER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Provide an air barrier system constructed to perform as a continuous air barrier and consisting of roof and wall assemblies sealed to the foundation, as indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 07 6200: Flashing and sheet metal.
3. Section 07 6110: Standing seam metal roofing.
4. Section 07 9210: Elastomeric joint sealants.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.3 DEFINITIONS

A. Air Barrier: Air tight barrier made of materials that are relatively air impermeable but water vapor permeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.

1.3 AIR BARRIER SYSTEM DESCRIPTION

A. Provide a continuous air barrier that is designed and constructed to control air leakage into, and out of, the building's conditioned space. The air barrier shall be sealed at all joints for its entire length.

B. Air barrier shall be composed of one or more of the following:
1. Materials that have an air permeance not exceeding 0.004 cfm/ft^2 under a pressure differential of 1.6 psf; (0.02 L/s/m^2 at 75 Pa) ASTM E2178.
a. Materials deemed to comply with CEC Section 140.3(a)9A, with all joints sealed and all materials installed in accordance with the manufacturer's instructions, as listed in CEC Table 140.3-A.
2. Assemblies of materials that have an average air leakage not exceeding 0.04 cfm/ft^2 under a pressure differential of 1.57 psf; ASTM E2357, ASTM E1677, ASTM E1680 or ASTM E283.
a. Materials deemed to comply with Section 140.3(a)9B if all joints are sealed and all of the materials are installed as air barriers in accordance with the manufacturer's instructions, as follows:
1) Concrete masonry walls that have at least two coatings of paint or at least two coatings of sealer coating.
2) Concrete masonry walls with integral rigid board insulation.
3) Structural insulated panels.
4) Portland cement or Portland sand parge, or stucco, or a gypsum plaster, each with a minimum 1/2 inch thickness.

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3. The entire building has an air leakage rate not exceeding 0.004 cfm/ft^2 at a pressure differential of 1.57 psf, when the entire building is tested, after completion of construction, in accordance with ASTM E779 or another test method approved by the Commission.

1.4 AIR BARRIER ASSEMBLIES DESCRIPTION

A. Air barrier materials and assemblies of materials indicated on the Drawings and specified herein are as follows:

B. Wood Stud Framed Walls with Plaster:
1. Cement plaster specified in Section 09 2400.
2. Plywood sheathing specified in Section 06 1100. All joints shall be over continuous solid blocking or shall be sealed with an approved air barrier tape.

C. Wood Stud Framed Walls with Fiber Cement Siding:
1. Fiber cement siding specified in Section 07 4600.
1. Metal panels specified in Section 07 4210.
2. Plywood sheathing over wood studs specified in Section 06 1100. All joints shall be over continuous solid blocking or shall be sealed with an approved air barrier tape.

D. Wood Framed Roofs:
1. Standing Seam Metal roofing specified in Section 07 6110.
2. Plywood sheathing specified in Section 06 1100.
3. Foam-in-place insulation specified in Section 07 2120.

E. Continuity of air barrier system through attics and interstitial spaces is maintained using foam-in-place insulation as specified in this section.

F. Bridge and seal air leakage pathways and gaps, including but not limited to:
1. Connections of the walls to the roof air barrier.
2. Connections of the walls to the foundations.
3. Seismic and expansion joints.
4. Openings and penetrations of window and door frames, store front, curtain wall.
5. Piping, conduit, duct and similar penetrations.
6. Masonry ties, screws, bolts and similar penetrations.
7. Flashing and sheet metal assemblies.
8. All other air leakage pathways in the building envelope.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate work of this Section with the work of other Sections for proper time and sequence to avoid construction delays.

B. Pre-installation Meeting: Convene pre-installation meeting a minimum of one week prior to starting framing to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions, if any.
1. Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as minimum:
a. Owner.
b. Architect.
c. Inspector.
d. Air barrier material installers.
e. Installers of framing, exterior sheathing, continuous insulation, roofing, metal wall panels, cement plaster, and electrical, plumbing and mechanical subcontractors as applicable.

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2. Ensure meeting agenda includes review of methods and procedures related to insulation installation including coordination with related work.
3. Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within 1 week of meeting.

PART 2 - PRODUCTS

2.1 CLOSED-CELL SPRAY POLYURETHANE FOAM

A. Closed-Cell Spray Polyurethane Foam: Medium-density, rigid or semi-rigid, closed cell polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas; ASTM C 1029, Type II; minimum density of 2.2 lb/ft^3 and minimum aged R-value at 1-inch thickness of 4.9 per inch.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide ProSeal Eco by Icynene Inc.
   2. Substitutions: Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Performance Requirements:
   1. Air Permeance: Maximum of 0.004 cfm/sf maximum (0.02 L/s/m^2 at 75 Pa): ASTM E2178.
   2. Water Vapor Permeance: Maximum 2 perm; ASTM E96, desiccant method.
   2. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
      a. Flame-Spread Index: 25 or less.
      b. Smoke-Development Index: 450 or less
   3. Compressive strength: Minimum 26 psi (ASTM D1621).
   4. Sustainability Requirements:
      a. Low Emitting: Insulation tested according to CA/DPH/EHLB/v.1.1-2010.
      b. Resistant to fungal growth as per ASTM C1338.
      c. Containing no PBDE.

2.2 JOINT AND SEAM TAPE

A. Tape:
   1. 3M All Weather Flashing Tape #8067 or approved equal.

2.3 ACCESSORIES

A. Sealants and Accessories:
   1. As specified or as recommended by foam manufacturer.
   2. As specified in Section 07 9210.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. All surfaces must be sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants

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detrimental to the adhesion of the membranes. Fill voids, gaps and spalled areas in substrate to provide an even plane. Strike masonry joints full-flush.

C. Curing compounds or release agents used in concrete construction must be resin based without oil, wax or pigments.

3.2 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Air Barriers: Install continuous air tight barriers, with sealed seams and with sealed joints to adjacent surfaces.

C. Apply sealants, tapes and adhesives within recommended application temperature ranges. Consult manufacturer if temperature is out of this range.

3.4 FOAMED-IN-PLACE AIR BARRIER INSTALLATION

A. Comply with insulation manufacturer’s written instructions applicable to products and applications.

B. Spray insulation to envelop entire area to be insulated and fill voids.

C. Apply in multiple passes to not exceed maximum thickness recommended by manufacturer. Do not spray into rising foam. Minimum thickness of 2”.

D. Do not apply insulation within 3" of heat emitting devices or where the temperature is in excess of 200 degrees F, per ASTM C411 or in accordance with applicable codes.

E. Framed Construction: Install into cavities formed by framing members to achieve thickness indicated on Drawings.

F. Miscellaneous Voids: Apply according to manufacturer’s written instructions.

3.5 FIELD QUALITY CONTROL

A. Allow access to air barrier work areas and staging.

B. Do not cover installed weather barriers until required inspections have been completed.

3.6 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION 07 2700

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SECTION 07 4600 - FIBER CEMENT SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide fiber cement siding where shown on the Drawings, as specified herein, and as needed for a complete and proper installation. Fiber cement siding includes:
   1. Lap siding.
   2. Vented soffit panels.
   3. Standing and running trim.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   2. Section 06 1100: Rough carpentry.
   3. Section 07 2700: Air barrier system.
   4. Section 07 9210: Blastomeric joint sealers.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturers recommended installation procedures.
   3. Samples: Submit four samples of each proposed material in the correct finish.
   4. Test Report: Applicable code authority evaluation report.
   5. Warranty: Submit copy of manufacturer’s warranty, made out in Owner’s name, showing that it has been registered with manufacturer.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section with minimum 3 years of experience.

PART 2 - PRODUCTS

2.1 SIDING

B. Lap Siding Manufacturers:
   1. James Hardie Building Products, Inc: www.jameshardie.com.
   2. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
   1. Style: Standard lap style.
   2. Texture: Simulated cedar grain.

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3. Length: 12 ft, nominal.
4. Width (Height): 8 inches.
5. Thickness: 7/16 inch, nominal.
6. Finish: Unfinished.
7. Warranty: 50 year limited; transferable.

C. Soffit Panels: Panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
1. Texture: Simulated cedar grain, vented.
2. Length: 96 inches, nominal.
3. Width: 48 inches.
4. Thickness: 5/16 inch, nominal.
5. Finish: Unfinished.
6. Manufacturer: Same as siding.

2.2 ACCESSORIES

A. Trim: Same material and texture as siding.

B. Fasteners: Galvanized or corrosion resistant; length as required to penetrate minimum 1-1/4 inch.

C. Joint Sealer: As specified in Section 07 9210.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.

B. Verify that weather barrier has been installed over substrate completely and correctly.

C. Do not begin until unacceptable conditions have been corrected.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Install sheet metal flashing:
1. Above door and window trim and casings.
2. Above horizontal trim in field of siding.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.
1. Read warranty and comply with all terms necessary to maintain warranty coverage.
2. Install in accordance with conditions stated in code evaluation report.
3. Use trim details indicated on drawings.
4. Touch up all field cut edges before installing.
5. Pre-drill nail holes if necessary to prevent breakage.

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B. Over Wood Sheathing: Fasten siding through sheathing into studs.

C. Allow space between both ends of siding panels that butt against trim for thermal movement; seal joint between panel and trim with exterior grade sealant.

D. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.

E. Do not install siding less than 6 inches from surface of ground nor closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.

F. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.

G. Finish Painting: Specified in Section 09 9100.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 07 4600

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SECTION 07 6110 - STANDING SEAM METAL ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide the work of this Section as indicated and specified. Extent of metal roofing and siding is indicated. Types of metal panels required include, but are not limited to:
   1. Factory formed standing seam roofing panels with manufacturer's standard snap-on seam caps.
   2. Fascia, trim, and associated metal flashing at perimeters, penetrations, and roof curbs.
   3. Prefabricated metal roof curbs for all roof penetrations including but not limited to HVAC units, skylights, duct openings, and exhaust fans.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   2. Section 07 6200: Sheet metal flashing and trim.
   3. Section 07 9210: Sealants and caulking.

1.2 PERFORMANCE REQUIREMENTS

A. Provide metal roofing system which has been tested and certified by the manufacturer to furnish the following resistance after metal roofing installation:
   1. UL Class 90; UL 580.
   2. ASTM E1592-95 for negative loading. Capacity for gage, span, or loading other than those tested may be determined by interpolating between test values only.
   3. UL Class 4; UL 2218.
   4. Metal roof panel systems shall have a maximum air infiltration rate of 0.007 cfm/ft2 at a pressure differential of 6.24 psf. when tested in accordance with ASTM E1680-95.
   5. Metal roof panel systems shall have no uncontrollable water leakage at a pressure differential of 2.86 psf. when tested in accordance with ASTM E1646-95.
   6. Class ‘A’ UL Fire Classification, Per ASTM E-108.

B. Solar Reflective Index: Minimum SRI of 75; or minimum solar reflectance of 0.63 and minimum thermal emmitance of 75.

1.3 DESIGN REQUIREMENTS

A. Design, manufacture, and install metal roof system to meet the requirements of this Section using the following loads:
   1. Wind Pressure: 30 psf uplift per Structural Calculations

B. Accessories and Fasteners:
   1. Shall be capable of resisting specified design wind uplift forces and allow for thermal movement of metal roof system.
   2. Exposed fasteners shall not restrict free movement of metal roof system resulting from thermal forces, except at designed points of roof panel fixity.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 3300.

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1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.
3. Shop Drawings: Indicate typical layout including dimensions. Submit detailed drawings of all profiles, joints, connections, edge conditions, valleys, roof curbs, vents, supports, anchorages, trim, flashings, closures, and interfaces with other materials. Submit detailed drawings of special accessory components not included in manufacturer's product data and provisions for expansion and contraction.
4. Calculations: Submit calculations indicating compliance with the requirements of this section.
5. Test Reports: Submit copies of test reports indicating compliance with ASTM E1592, UL 2218 Class 4 hail rating, and UL 580 Class 90.
5. Samples: Submit 3 samples, each approximately 12" square, in colors specified.
6. Certification: Submit letter from manufacturer certifying installer as the Manufacturer’s Certified Installer.
7. Roofing installer shall provide evidence of a minimum of 5 roofing installations of similar size and complexity with similar material. Provide references including project name and location, telephone number and name of Owner and General Contractor, size of project, and date of completion. Failure to provide the above information shall be reason for rejection of this subcontractor. The General Contractor shall thereby provide another subcontractor with approved experience at no additional cost to the owner.

1.5 QUALITY ASSURANCE

A. Applicable Standards:
   1. ASTM E1592 Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
   2. UL 580 Tests for Uplift Resistance of Roof Assemblies.
   3. UL 2218 Impact Resistance of Prepared Roof Covering Materials.
   4. ASCE 7 Minimum Design Loads for Buildings and Other Structures.

B. Installer Qualifications:
   1. A single installer (roofer) shall perform the work of this section; and shall be a firm with not less than 5 years of successful experience in installation of preformed metal roofing/siding similar to those in size and complexity for this project and which is acceptable to or licensed by manufacturer of the primary roofing materials.
   2. Installer shall have received training and licensing from the manufacturer for installation of the specified metal roofing system.
   3. Panels and flashings specified in this section shall be radius formed by a manufacturer authorized contractor using only manufacturer authorized and inspected equipment.

C. Colors: Provide finish selections indicated in the Finish Schedule.
   1. Acceptable Manufacturers: The products and manufacturers specified in the Finish Schedule are for purposes of establishing color and quality. Refer to each Specification Section for additional manufacturers and Section 01 2500 for substitution requirements.
   2. Manufacturer’s Standard Colors and Finishes: Where the Finish Schedule specifies a manufacturer’s standard color or finish, the Architect makes no guarantee that matching colors or finishes are available as other manufacturer’s “standard colors” from the listing of acceptable manufacturers. The Contractor shall be responsible for providing colors matching those indicated on the Drawings.
   3. Custom Colors: Where the Finish Schedule indicates a specific manufacturer’s colors, other acceptable manufacturers shall provide matching custom colors where a standard color is not acceptable.
D. Roofing Manufacturer's Representative: Roofing manufacturer's representative (field engineer) shall:
   1. Attend preconstruction conference.

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2. Attend preroofing conference.
3. Make periodic inspections, during roof system installation, for compliance with the Contract.
4. Inspect roof when complete.
5. Inspect roof prior to the end of the 3-Year special project warranty called for in 1.7.C.

1.6 PRE-ROOFING MEETING

A. Not less than three nor more than 10 calendar days prior to scheduled start of roofing installation, conduct a roofing substrata inspection and pre-roofing meeting at the job site. Review methods and procedures related to roofing system including, but not limited to, the following:
   1. Meet with Owner, Architect, Inspector, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
   2. Discuss proposed schedule for installation of the roofing, and reach agreement as to dates of start and finish of installation of the roofing.
   3. Discuss product submittals and warranties.
   4. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
   5. Discuss interface with the work of other trades.
   6. Discuss proposed methods for installation of the roofing, and equipment and personnel to be used.
   7. Discuss inspection methods to be used.
   8. Visually inspect all substrata upon which roofing is scheduled to be applied for compliance with requirements, including flatness and fastening.
      a. Determine general acceptability, and determine areas requiring further preparation.
      b. Determine acceptable remedies for unacceptable areas.
   9. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

1.7 SPECIAL WARRANTY

A. PVDF (Polyvinylidene Fluoride) Coating Warranty: In addition to the warranty requirements of the Contract Documents, submit 2 original copies of coating applicator's **20-year** extended warranty. Warrant coating against peeling, blistering, chipping, checking, chalking in excess of a numerical rating of 8 when measured in accordance with ASTM D659, and fading and color change in excess of 5 NBS units when measured in accordance with ASTM D2244.

B. Installer's Warranty: In addition to the warranty requirements of the Contract Documents, submit 2 original copies of the roofing installer's **3-year** extended warranty covering roof system installation and water-tightness.
   1. Warranty shall include repair or replacement of damaged finishes, furnishings and equipment due to defective roof materials or workmanship and return building to its original condition.
   2. Installer shall make repairs without reference to or consideration of the cause or nature of such leaks or defects within 24 hours after receipt of notice from the Owner by telephone, telegram, or letter.
   3. Repairs required within the warranty period shall be provided without cost to the Owner; except that repairs required consequent to an act of God, abuse, alterations, or failure of the substrata or the supporting structure (other than caused by defects in the work of this Section) will be paid for by the Owner promptly upon completion of the repair in each instance.
   4. Repairs completed at Owner's cost shall be invoiced to the Owner at prevailing rates, and shall include an itemized breakdown of quantities plus unit cost for labor and materials, and shall include not more than 15% markup for overhead and profit.

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5. This warranty shall be in addition to the warranty requirements of the Contract Documents and the enforcement of its provisions shall not deprive the Owner of any action, right, or remedy otherwise available to him.

C. Roof Manufacturer's Warranty: In addition to the warranty requirements of the Contract Documents, roof system manufacturer shall execute two copies of a single warranty covering of the following criteria. Multiple-source warranties are not acceptable.
1. Manufacturer's **20-year** "No Dollar Limit" watertightness warranty, including coverage for all trim, flashings, and penetrations associated with the roof area.
2. The metal roof panel system shall not allow intrusion of water from the exterior of the roof system into the building envelope, when exposed to ordinary weather conditions and ordinary wear and usage.
3. Warranty shall commence on date of Notice of Completion.

1.8 MANUFACTURER'S INSPECTIONS

A. When the project is in progress, the roofing system manufacturer will inspect the work not less than 3 days per week. In addition, the manufacturer will:
1. Keep the Architect or Owner informed as to the progress and quality of the work as observed.
2. Report to the Architect in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.
3. Confirm after completion that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01620.

B. Galvalume(R): ASTMA 792; Bethlehem Steel Corporation cold-rolled steel sheet to which corrosion-resistant aluminum-zinc alloy coating is factory-applied.

C. Factory Finish PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system; 70% Kynar 500 resin or Hylar 5000 resin.

1. 2-Coat Finish: Dry Film Thickness, ASTM D1400; 0.15 mil primer coat plus 0.70 mil color coat, 0.85 mil total minimum thickness.
2. Color: As indicated on the Finish Schedule.
3. Provide factory applied strippable plastic film for protection during fabrication and installation.
4. Interior Panel Finish: Inhibitive thermo-cured primer, 0.15 mil minimum dry film thickness with off-white wash coat, 0.35 mil minimum dry film thickness.

2.2 METAL ROOFING PANELS

A. Acceptable Products - Straight Panels:

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1. LokSeam by MBCI.
2. Design Span hp by AEP-SPAN.
3. Permaseam by McElroy Metal, Inc.
4. Vertical Seam by Metal Sales Manufacturing Corporation.
5. UC-14RS by Firestone Building Products Inc.
6. Thin Seam by Fabral.

(Roofing manufacturer to provide current ICC-ES Evaluation Reports (ESRs), (NOA) or DSA accepted report)

B. Configuration: Integral self-locking standing seams with concealed clips, 1-3/4" high nominal, nominal spacing of 18" on center, with panel factory-corrective leveled, with factory applied high-grade elastomeric sealant within the confines of the female seam flange, for watertight seal of seam.

2.4 ACCESSORIES

A. Concealed Clip/Fastener Assembly:
   1. Clip: 18 gage minimum thickness, Class 90 (UL-90) rated for the substrates specified, minimum G-60 galvanized per ASTM A525. Structurally embossed outstanding legs fabricated to raise underside of panels above substrate to create positive ventilation and eliminate underside condensation and corrosion.
   2. Metal substrate fasteners: Manufacturer's standard #10-16 x 1" long self-drilling, self-tapping pancake head Phillips drive screws for metal, corrosion resistant.
   3. Wood substrate fasteners: Manufacturer's standard #10-12 x 1" long A-point fastener, pancake head Phillips drive screws for plywood, corrosion resistant.

B. Exposed Fasteners: EPDM gasketed heads with color to match exterior panel color.

C. Closures: Manufacturer's standard, weatherproof, tightly fitted to panel configuration.

D. Sealant:
   1. Concealed sealants: Manufacturer's recommended sealant.
   2. Tape sealants: Butyl.
   3. In-seam sealant: Factory applied, non-shrinking, non-drying synthetic butyl elastomer.

E. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.

F. Flashings and Trim: Material, thickness, and finish to match roof panels.

2.5 UNDERLAYMENT

A. Membrane Underlayment: SlopeShield Plus SA by VaproShield, 20 mils thickness, or approved equal.
   1. Air Permeance: 0.00086 cfm/sf at 1.57 lbs/sf; ASTM E2178.
   2. Water Vapor Permeance: 30 perms; ASTM E96.
   3. Surface Burning Characteristics: Class A, ASTM E84; flame spread rating of 5 and smoke development classification of 45.
   4. Tensile Strength: 16 lbF/in MD and 8 lbF/in XMD; ASTM D2523.

2.6 PREMANUFACTURED ROOF CURBS

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A. Prefabricated Metal Roof Curbs by LMCurbs, 800-284-1412, or approved equal.

B. Construction: Minimum thickness of 0.080" aluminum; 3003H14. Provide heavier thickness where needed to support the load of the equipment, fully mitered and heli-arc welded watertight corners and seams, integral base plates, with integral water diverter cricket, and factory installed insulation.

C. Roof Curb Fabrication:
1. 8" minimum height above finished roof surface at high side.
2. Construct curbs to match slope of roof and provide a level top surface for mounting equipment.
3. Construct curb flange to match configuration of roof panel. Extend side flange to the next natural seam in the roof panels conform to seam configurations.
4. Provide interior partitions as needed for HVAC equipment.

D. Coordination: Coordinate between the curb manufacturer, the general contractor, and the mechanical contractor prior to curb fabrication.

2.7 FABRICATION

A. Roof Panel Fabrication:
1. Fabricate panels in continuous 1-piece lengths and flashings in longest practical lengths.
2. Factory form panels and flashings. Field formed panels and flashings will not be acceptable.
3. Engineer and fabricate panels to use concealed clips and fasteners that permit expansion and contraction.

B. Flashing Fabrication:
1. Fabricate in accordance with the SMACNA Architectural Sheet Metal Manual.
    a. Form sheet metal accurately and to the dimensions and shapes required, finishing molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, coping to an accurate fit and soldering securely.
    b. Unless otherwise specifically permitted by the Architect, turn exposed edges back 1/2".
    c. Shop fabricate work to the greatest extent possible.
2. Fabricate, and form work to fit substrates. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
3. Fabricate to shapes indicated in 10'-0" lengths except where shorter lengths are required by construction or sheet size.
4. Corners: Shop prefabricate interior and exterior turns, and other changes in direction using epoxy seam sealer and rivets to rigidly secure the assembly and render watertight.
5. Fabricate curved flashings to radius indicated on the drawings by means of a curving mill provided by the metal roofing manufacturer. Other means of curving roof panels will not be acceptable.

2.8 REQUIRED MATERIALS

A. As part of the work of this Section, provide all materials required by the roofing manufacturer for the specified special warranties specified.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

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B. Verify that substrate is sound, dry, properly sloped for drainage, and completely secured in position.

C. Verify that provision has been made for roof drains, scuppers, flashings, and all other interface items attaching to or penetrating through the work of this Section.

D. Beginning installation constitutes acceptance of the substrate and responsibility for proper performance.

3.2 INSTALLATION, GENERAL

A. Do not allow the installed work of this Section to be used as a storage space for other materials.

B. Do not permit unnecessary walking on the finished roof. Require all personnel to wear clean, soft-soled work shoes that will not pick up stones or other abrasive material which could cause damage and/or discoloration when installing or walking on the finished roof.

C. Remove and replace all damaged material.

3.3 UNDERLAYMENT INSTALLATION

A. Membrane Underlayment: Install shingle fashion in strict accordance with the manufacturer's written instructions in valleys, continuous at roof ridge and eaves, at all roof penetrations (HVAC, plumbing, electrical), and other locations indicated. Install per manufacturers recommendations

3.4 ROOF CURB INSTALLATION

A. Comply with roof curb manufacturer’s written instructions, providing watertight seal between curb flanges and metal roofing panels.

3.5 ROOF PANEL INSTALLATION

A. Install the work of this Section in strict accordance with the manufacturer's recommendations as approved by the Architect, anchoring all components firmly into position as a completely watertight and weather-tight installation. Install all work with concealed fasteners, clips, and cleats typically.

B. Roof Panels: Follow roof panel manufacturer's written instructions. Install panel seams vertically.
   1. Lap panels away from prevailing wind direction.
   2. Do not stretch or compress panel side-lap interlocks.
   3. Secure panel without warp or deflection.
   4. Fully engage battens.
   5. Remove strippable protective film, if used, **immediately preceding** panel installation.
   6. Space and anchor seam fastener clips in accordance with the manufacturer's recommendations for the performance and design requirements specified, 24" maximum spacing.

C. Allowable Erection Tolerance: Maximum alignment variation shall not exceed 1/4" in 40'-0".

D. Flashing: Follow manufacturer’s directions and approved shop drawings. Install flashings to allow for thermal movement.

E. Cutting and Fitting: Neat, square and true. Torch cutting is prohibited. Openings 6" and larger in any direction: Shop fabricate and reinforce to maintain original load capacity. Where necessary to saw panels, debur and treat with galvanic paint.

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F. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of panel system. Provide types of gaskets, sealants, and fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.
   1. Provide weatherseal under ridge cap. Flash and seal roof panels at eave and rake with rubber, neoprene, or other closures to exclude weather.

G. Sealant: Field apply sealant to penetrations, transitions, and other locations necessary for an waterproof installation.

3.6 SEAMING

A. Interlock panel seams entire length of seam.

B. Complete seaming of roof panel joints as recommended by roof panel manufacturer to furnish weathertight joint.

3.7 FLASHING INSTALLATION

A. Formed Copings: Fabricate profile as indicated. Install 8" long concealed back-up plate, formed to exact profile of coping, at joints and secure plate in place prior to coping installation. Install a continuous bead of sealant each side of joint and set coping in place leaving 1/4" space between sections. Secure front edge with continuous cleat secured at 18" on center maximum. Minimum thickness as follows:
   1. 24 gage minimum for 12" maximum top width.
   2. 22 gage minimum for 13" to 18" top width.

B. Fascia: Fabricate profile as indicated, 24 gage minimum thickness. Provide 6" wide concealed back-up plate, formed to exact profile of fascia and secure plate in place prior to installation. Install a continuous bead of sealant each side of joint and set fascia in place leaving 1/4" space between sections.

C. Continuous Cleats: Form from same material as the unit which the cleat anchors. 20 gage minimum thickness.

3.8 CLEAN UP

A. Touch up damaged paint surfaces with air dry touch up paint provided by manufacturer. Follow directions carefully to minimize color irregularities. Small brush application only - **do not spray touch up paint**.

B. At completion of each day's work and at Work Completion, sweep panels, flashing and gutters clean. Do not allow fasteners, cuttings, filings or scraps to accumulate. Remove debris from project site upon completion of each phase/building of work.

END OF SECTION 07 6110

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SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Provide flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the building.

B. Types of flashing and sheet metal work include, but are not limited to:
1. Metal trim/fascia units.
2. Miscellaneous sheet metal accessories.

C. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 07 6100: Standing seam metal roofing.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Shop Drawings: Submit detailed drawings of layout, joining, profiles, terminations, and anchorages of fabricated work. Submit detailed drawings of special accessory components.
2. Samples: Submit 3 samples, each approximately 12" square, in colors specified.

1.3 QUALITY ASSURANCE

A. In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in current edition of "Architectural Sheet Metal Manual" published by the Sheet Metal and Air-Conditioning Contractors National Association (SMACNA).

B. Standard commercial items may be used for flashing, trim, reglets and similar purposes provided such items meet or exceed the quality standards specified.

C. Colors: Provide finish selections indicated in the Finish Schedule.
1. Acceptable Manufacturers: The products and manufacturers specified in the Finish Schedule are for purposes of establishing color and quality. Refer to each Specification Section for additional manufacturers and Section 01 2500 for substitution requirements.
2. Manufacturer’s Standard Colors and Finishes: Where the Finish Schedule specifies a manufacturer’s standard color or finish, the Architect makes no guarantee that matching colors or finishes are available as other manufacturer’s “standard colors” from the listing of acceptable manufacturers. The Contractor shall be responsible for providing colors matching those indicated on the Drawings.
3. Custom Colors: Where the Finish Schedule indicates a specific manufacturer’s colors, other acceptable manufacturers shall provide matching custom colors where a standard color is not acceptable.

1.4 SPECIAL WARRANTY

A. PVDF (Polyvinylidene Fluoride) Coating Warranty: In addition to the warranty requirements of the Contract Documents, submit 2 original copies of coating applicator's 20-Year warranty. Warrant coating against peeling, blistering, chipping, checking, chalking in excess of a numerical rating of 8 when measured in

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accordance with ASTM D659, and fading and color change in excess of 5 NBS units when measured in accordance with ASTM D2244.2.

B. Special Project Warranty: Upon completion of the Work and as a condition of its acceptance, deliver to the Architect two original copies of the following Special Warranty, signed by the Contractor and the roofing subcontractor:
   1. The undersigned hereby propose, and upon execution of this document by the Owner, agree for a period of 2 years after Substantial Completion of the Work to make immediate repairs as required to stop leaks or correct defects in the work of this Section, within 24 hours after receipt of notice from the Owner by telephone, telegram, or letter; and further agree to make such repairs without reference to or consideration of the cause or nature of such leaks or defects.
   2. As a further condition of this 2-year Special Warranty, the undersigned hereby agree to repair or replace any other damaged products and finishes, to return the building to its original condition, and to notify the roof system manufacturer in writing within 30 days that such repairs were made.
   3. Repairs required within the stated period will be provided without cost to the Owner; except that repairs required consequent to an act of God, abuse, alterations, or failure of the substrata or the supporting structure (other than caused by defects in the work of this Section) will be paid for by the Owner promptly upon completion of the repair in each instance.
   4. Repairs completed at Owner's cost shall be invoiced to the Owner at prevailing rates, and shall include an itemized breakdown of quantities plus unit cost for labor and materials, and shall include not more than 15% markup for overhead and profit.
   5. This Special Warranty shall be in addition to the warranty requirements of the Contract Documents and the enforcement of its provisions shall not deprive the Owner of any action, right, or remedy otherwise available to him.

PART 2 - PRODUCTS

2.1 FLASHING MATERIALS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Materials and Gauges: Where sheet metal is required, and no material or gauge is indicated on the Drawings, provide highest quality and gauge commensurate with the referenced standards. In no case shall sheet metal be less than 24 gauge.

C. Galvanized Steel Sheet Materials: ASTM A653, with G90 zinc coating; minimum 24 gauge except as otherwise indicated.

D. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.

2.2 PREMANUFACTURED PARAPET COPING ASSEMBLIES

A. Coping Manufacturer: Subject to compliance with requirements, provide products by:
   1. R-Mer Edge Coping by Garland, 1-800-321-9336.
   2. Perma-Tite Coping by Metal-Era, 1-800-558-2162.
   3. Permasnap Coping by Hickman Engineered Systems, 1-828-676-1700.
   4. Presto Lock Coping by Johns Manville, 1-800-445-1500.

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5. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01620.

B. Performance Characteristics:
1. Pull-Off Resistance: Tested in accordance with SPRI ES-1 RE-3 to positive and negative design wind pressure as defined by CBC Section 1504.5.
2. Coping sections shall expand and contract freely while mechanically locked in place on anchor cleats.
3. Coping sections shall lock to anchor cleats by mechanical pressure from support chairs.
4. All coping cover joints shall be underlayed with gutter/support chairs capable of draining water.

C. Materials:
1. Coping: Formed steel sheet, galvanized, 24 gauge thick, minimum; factory finish PVDF coating
2. Anchor Cleat: 20 gauge galvanized steel, 12” wide, with coping support; cleat spaced at 5'-0”on center minimum, mechanically fastened as indicated.
3. Concealed Splice Plates: Material and finish to match coping, 8 inch” wide, with factory applied dual non-curing sealant strips or formed water channels.
4. Fasteners: Stainless steel screw type with a minimum pull-out resistance of 240 #; no exposed fasteners permitted.

D. Fabrication:
1. Factory fabricated to sizes required.
2. Factory fabricated mitered and welded corners, end caps, and wall terminations.
3. Factory formed to radius and arch where indicated.

2.3 PREMANUFACTURED REGLET ASSEMBLIES

A. Reglet Manufacturer: Subject to compliance with requirements, provide products by:
1. Springlock Flashing and Reglets by Fry Reglet Corp.
2. Snap-Tite System by Mm Systems Corp.
3. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01620.

B. Materials:
1. Reglet: 24 gauge galavanized steel; ASTM A653 with G90 zinc coating.
2. Counter Flashing: 24 gauge galavanized steel; ASTM A653 with G90 zinc coating; factory prefinished.
3. Provide prefabricated prefinished inside and outside corners, sealed watertight.

2.4 FABRICATED FLASHINGS

A. Fascia: Fabricate profile as indicated, 24 gauge minimum thickness.
1. 6" wide concealed back-up plate, formed to exact profile of fascia and secure plate in place prior to installation.
2. Install continuous bead of sealant each side of joint and set fascia in place leaving 1/4" space between sections.

B. Conductor Heads: 24 gauge minimum thickness.
1. Fabricate as indicated similar to SMACNA Figure 1-25B.
2. Connect to sheet metal scupper similar to Figure 1-__.

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C. Drip Edges: Fabricate as indicated, 24 gauge minimum thickness.

D. Continuous Cleats: Form from same material as the unit which the cleat anchors, 20 gauge minimum thickness.

2.5 FINISHES

A. Factory Finish PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system; 70% Kynar 500 resin or Hylar 5000 resin.

1. 2-Coat Finish: Dry Film Thickness, ASTM D1400; 0.15 mil primer coat plus 0.70 mil color coat, 0.85 mil total minimum thickness.
2. Color: As indicated on the Finish Schedule.
3. Provide factory applied strippable plastic film for protection during fabrication and installation.

2.6 MISCELLANEOUS MATERIALS

A. Nails, Rivets, and Fasteners: Same metal as flashing/sheet metal or other noncorrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

B. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

C. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet

D. Roofing Cement: ASTM D 2822, asphaltic.

E. Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.

F. Solder: For use with steel provide 50-50 tin/lead solder (ASTM B32), with rosin flux.

G. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

2.7 FABRICATION

A. General: Fabricate in accordance with the SMACNA Architectural Sheet Metal Manual.
1. Form sheet metal accurately and to the dimensions and shapes required, finishing molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, coping to an accurate fit and soldering securely.
2. Unless otherwise specifically permitted by the Architect, turn exposed edges back 1/2".
3. Shop fabricate work to the greatest extent possible.

B. Fabricate and form work to fit substrates. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

C. Fabricate to shapes indicated in 10'-0" lengths except where shorter lengths are required by construction or sheet size.

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D. Corners: Shop prefabricate interior and exterior turns, and other changes in direction using epoxy seam sealer and rivets to rigidly secure the assembly and render watertight.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 WORKMANSHIP

A. General: Comply with manufacturer's written instructions and with SMACNA Architectural Sheet Metal Manual, 2003 Edition. Anchor units securely in place by methods indicated, providing for expansion of metal units; conceal fasteners where possible; and set units true to line and level. Install work with laps, joints, and seams which will be permanently watertight and weatherproof.
   1. Where lap seams are indicated, lap according to pitch, but not less than 3".
   2. Make flat and lap seams in the direction of flow.

B. Joints:
   1. Join parts with rivets or sheet metal screws where necessary for strength and stiffness.
   2. Provide suitable watertight expansion joints for runs of more than 40'-0", except where closer spacing is indicated on the Drawings or required for proper installation.

C. Separations:
   1. Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
   2. Where sheet metal work will be in contact with masonry, concrete, or stone, evenly coat contact surfaces with non-sagging mastic. Where sheet metal work will be embedded in mortar joints, evenly coat both sides with non-sagging mastic.

D. Embedment: Embed metal in connection with roofs in a solid bed of sealant, using materials and methods described in Section 07 9210 of these Specifications or other materials and methods approved by the Architect.

3.3 CLEANUP

A. After completion, clean all exposed work of scraps, stains, and dirt. After cleaning, wash with clean water and wipe dry.

END OF SECTION 07 6200

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SECTION 07 7220 - ROOF CURBS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide roof curbs where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturers recommended installation procedures.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 ROOF CURBS

A. Manufactured Curbs, Equipment Rails, Roof Mounting Assemblies: Factory-assembled hollow sheet metal construction with fully mitered and welded corners, integral counter-flashing, internal reinforcing, and top side and edges formed to shed water; as manufactured by The Pate Company, ThyBar Corporation, or Vent Products Inc.
1. Construction: 14 gage galvanized sheet metal.
2. Finish: Factory prime coated for finish painting at the job site.
3. Insulation: 1-1/2" rigid glass fiber, located on outside face of curb.
4. Wood Nailer: Preservative treated wood nailer along top of curb.
5. Mounting: Manufacture curb bottom and mounting flanges for installation directly on roof deck, not on insulation; match slope and configuration of roof deck.
6. Curb Height: 8" from finished surface of roof, minimum.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Coordinate as necessary with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install the work of this Section in strict accordance with the manufacturers' recommendations as approved by the Architect, anchoring all items firmly into position for long life under hard use.

END OF SECTION 07 7220

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SECTION 07 8400 - FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide firestopping where shown on the Drawings, in all penetrations through fire rated walls, floors, and ceiling, and as specified herein, and as needed for a complete and proper installation. The Work of this Section includes, but is not limited to:
   1. Through penetration firestops and smoke stops for all fire-rated bearing and non-bearing wall and floor assemblies, both blank (empty) and those accommodating penetrating items such as cables, conduits, pipes, ducts, etc.
   2. Membrane penetration for fire-rated walls.
   3. Architectural/construction joint firestops within walls, floors, or the intersections of floors to exterior walls, or the intersection of top of walls to ceilings.
   4. Top of wall firestopping in all fire-rated partitions.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   2. Section 07 9210: Sealants and caulking.
   3. Section 22 0000: Plumbing.
   4. Section 23 0000: General Mechanical Provisions.
   5. Section 26 6000: General Conditions for Electrical Work.
   6. Section 27 0000: Communication Systems General.

C. Completely coordinate with work of all other trades.

D. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure and complete installation.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturers recommended installation procedures.
   3. UL Tested Systems: Submit drawings showing typical installation details for the methods of installation. Indicate which firestop materials will be used and thickness for different hourly ratings. Indicate construction of wall or floor assemblies, size, F-rating, T-rating, and remarks.
   4. Engineering Judgements: Submit manufacturer's drawings for all non-standard applications where no UL tested system exists. Indicate the "tested" UL system upon which the judgement is based so as to assess the relevance of the judgement to some known performance.

1.3 PERFORMANCE REQUIREMENTS

A. Firestopping Systems (Materials and Design):
   1. Conform to both Flame (F) and Temperature (T) ratings as determined by tests conducted in accordance with ASTM E814 in a configuration that is representative of field conditions.
   2. F ratings shall be a minimum of 1-hour but not less than the fire resistive rating of the assembly being penetrated.

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3. T ratings shall be based on measurement of the temperature rise on penetrating item(s).

B. Firestopping materials and systems shall be capable of closing or filling through-openings created by:
   1. The burning or melting of combustible pipes; cable jacketing, or pipe insulation materials, or;
   2. Deflection of sheet metal due to thermal expansion (electrical and mechanical ductwork).

C. Firestopping shall be flexible, allowing for normal pipe movement and shall not shrink upon drying as evidenced by cracking or pulling away from contact surfaces.

D. Firestopping shall be moisture resistant and shall not dissolve in water after curing.

E. Penetrations containing loose electrical, data, or communications cabling shall be protected using firestopping systems that allow unrestricted cable changes without damage to seal.

F. Materials shall not require ampacity derating in power cable installations.

PART 2 - PRODUCTS

2.1 FIRESTOPPING MATERIALS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
   1. 3M Ceramic Materials
   2. Tremco
   3. Morgan Thermal Ceramics
   4. USG
   5. RectorSeal Corp.
   6. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Wall, Floor, and Ceiling Penetrations: ASTM E814.
   1. Provide systems designed specifically for the penetration condition, materials, and required fire rating.
   2. Through-penetration fire stops may be used for membrane penetrations.
   3. The F rating shall apply to all through-penetrations and shall not be less than the required fire-resistance rating of the assembly penetrated.
   4. The T rating shall apply to those through-penetration location required to have T ratings as specified in CBC Sections 714 and shall not be less than the required fire-resistance rating of the assembly penetrated.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

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A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify that all pipe, conduit, cable, and other items which penetrate fire-rated construction have been permanently installed prior to installation of firestops.

3.2 INSTALLATION

A. Install the work of this Section in strict accordance with the original design, requirements of governmental agencies having jurisdiction, and the manufacturers recommended installation procedures to comply with the designated and required firestop rating.

B. Conditions Requiring Firestopping:
   1. General: Provide firestopping for conditions specified whether or not firestopping is indicated, and if indicated, whether such material is designed as insulation, safing, or otherwise.
   2. Through-Penetrations: Install firestopping in all penetrations and in the annular space in all penetrations in any bearing or non-bearing fire-rated barrier.
   3. Membrane-Penetrations: Where required by CBC Section 714, protect all membrane-penetrations in rated walls with firestopping.
   4. Construction Joints/Gaps: Provide firestopping:
      a. Between the edges of floor slabs and exterior walls.
      b. Between the tops of walls and the underside of floors.
      c. In the control joints in masonry walls and floors.
      d. In expansion joints.

C. Dam Construction: When required to properly contain firestopping materials within openings, damming or packing materials may be utilized. Combustible damming material shall be removed after appropriate curing. Noncombustible damming materials may be left as a permanent component of the firestop system.

END OF SECTION 07 8400

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SECTION 07 9210 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Throughout the Work, seal and caulk joints where shown on the Drawings and elsewhere as needed to provide a positive barrier against passage of moisture and air.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 03 3000: Cast-In-Place Concrete.
3. Section 07 8400: Firestopping of penetrations in fire-rated walls.
4. Section 09 9100: Painting.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturers recommended installation procedures.
3. Samples: Submit samples of each sealant, each backing material, each primer, and each bond breaker proposed to be used. Provide minimum of 4 samples of each manufacturers standard color for each application. Provide sample of each installation type for Architect approval prior to beginning installation. Repeat samples until acceptable installation is approved by the Architect.

1.3 QUALITY ASSURANCE

A. Rejection of Installed Caulking and Sealants: Indication of lack of skill on the part of installers shall be sufficient grounds for rejection of installed caulking and to require its immediate removal and complete re-caulking at no additional cost to the Owner.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01 6600.

B. Do not retain at the job site material which has exceeded the shelf life recommended by its manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Comply with VOC requirements of California Green Building Standards Code, Sections 5.504.4.1 and 5.504.4.2.

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2.2 SEALANTS AND CAULKING

A. Silicone Sealant:
   1. White Mildew Resistant: 786 White by Dow Corning, Sanitary 1700 White by General Electric, 863 White by Pecora.
   2. General Exterior: 791 by Dow Corning, Silpruf by General Electric, 864 by Pecora, Spectrum 2 by Tremco.

B. Polyurethane Sealant:
   1. General Use: DynaTrol II by Pecora, Dymeric by Tremco, Sikaflex-2c,NS/SL by SIKA.
   2. Self-leveling Type: NR-201 by Pecora, Sonalastic SL1 by Sonneborn, Sikaflex 1cSL by Sika.

C. Acrylic Latex Sealant: AC-20+ Silicone by Pecora, Sonolac by Sonneborn.

D. Colors: Colors for each sealant installation will be selected by the Architect from standard colors normally available from the specified manufacturer.
   1. In concealed installations use standard gray or black sealant.
   2. Provide black sealant at glazing pockets.

2.3 ACCESSORY MATERIALS

A. Primers: Non-staining type, recommended by manufacturer to suit application.

B. Back-up Materials: Non-absorbent, non-staining, and specifically recommended for application by sealant manufacturer.

C. Bond Preventative Materials: Pressure sensitive tape recommended by sealant manufacturer to suit application.

D. Masking Materials: Appropriate masking tape which will effectively prevent application of sealant on surfaces not scheduled to receive it, removable without damage to substrate or staining.

E. Joint Cleaner: Non-corrosive, non-staining type recommended by sealant manufacturer; compatible with joint forming materials.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work will be performed. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Prepare all surfaces to receive sealants and caulking in strict accordance with the manufacturer's written requirements. Use solvents and primers where recommended by the manufacturer.

B. Clean all concrete joints, full depth free of debris and dust.

3.3 INSTALLATION

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A. Install joint backing to achieve a neck dimension of no greater than 1/3 the joint width. Install in strict accordance with the manufacturer's written instructions.

B. Install bond breaker where joint backing is not used.

C. Mask adjacent surfaces to prevent contact of sealant with adjoining surfaces which would be stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape after tooling without disturbing joint seal.

D. Install sealant to manufacturer’s instructions.

E. Measure joint dimensions and size materials to achieve required width/depth ratios.

3.4 PRODUCT USAGE BY LOCATION

A. Where more than 1 type of sealant is listed, the Contractor may use either listed product that is best suited in accordance with the sealant manufacturer's written recommendations for the joint location and type and the surfaces to be sealed with particular attention given to prevent staining. Provide sealants and caulking as follows:
   1. Exterior, general use: Polyurethane or Silicone.
   2. Interior, wet areas: Mildew Resistant Silicone.
   3. Interior, general use and painting: Acrylic latex.
   4. Expansion and control joints, vertical and overhead surfaces: Polyurethane or Silicone.
   5. Expansion and control joints, horizontal surfaces: Self-leveling Polyurethane.
   6. Interior concrete slab (where slab is finished floor, fill all crack control joints): Polyurethane.
   7. Exterior concrete walks and courts (where indicated on the plans): Polyurethane.
   8. Horizontal surfaces, traffic: Self-leveling Polyurethane.
   9. Glazed tile and/or masonry: Polyurethane or Silicone.
   10. Plumbing fixtures: Mildew Resistant Silicone.
   11. Glazing to metal frame: Black Silicone.

3.5 CLEANING AND REPAIRING

A. Clean adjacent soiled surfaces.

B. Repair or replace defaced or disfigured finishes caused by sealant work.

END OF SECTION 07 9210

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SECTION 08 1110 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide hollow metal doors, and hollow metal door and window frames, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 08 7100: Hardware requirements and templates.
3. Section 08 8100: Glass for vision panels, sidelights, and windows.
4. Section 09 9100: Field Painting

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturers recommended installation procedures.
3. Shop Drawings: Submit details of each frame type, elevations of door designs, details of openings, and details of construction, installation, and anchorage.

1.3 QUALITY ASSURANCE

A. Provide all products of this Section from a single manufacturer.

B. Comply with ANSI/SDI A250.8-2003 and HMMA 861-14.

1.4 FIRE AND SMOKE RATINGS

A. Fire and Smoke Rated Door Assemblies: Where fire-rated or smoke-rated assemblies are indicated or required, provide door and frame assemblies that have been tested, listed, and labeled by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
1. Side-hinged or Pivoted Swinging Doors: UL 10C.
2. Doors in Fire-rated Corridors and Smoke Barriers: 20 minute fire protection rating; UL 10C without hose stream test.
3. Door in Exit Enclosures and Exit Passageways: UL 10C; maximum transmitted temperature end point of not more than 450̊F above ambient at end of 30 minutes of standard fire test exposure.
4. Smoke and Draft Control Doors: UL 10C and UL 1784.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Steelcraft, (805) 837-4111.
2. Stiles Custom Metal, Inc., (209) 538-3667.

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3. Ceco Door Products, (510) 489-1700.
4. Curries, (559) 432-5537.
5. Security Metal Products, (310) 641-6690.
6. Metal Manufacturing Co., (916) 922-3484.
7. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 METAL DOORS

A. Exterior Flush Doors:
   1. ANSI/SDI A250.8, Level 3, Model 2 (seamless), minimum 16 gauge (0.067") faces.
   2. Top Closure: 16 gauge flush end channel closure with seal against moisture entry.
   3. Bottom Closure: 16 gauge recessed end channel with drainage openings.
   4. Galvanizing: Hot-dipped zinc coating; ASTM A653 with A60 or G60 coating.
   5. Reinforce doors internally with 18 gauge steel hat section ribs.
      a. Weld reinforcing to each door face with spot welds to faces spaced 4" on center.
      b. Ends of ribs welded together full width of the supporting web span.
      c. Insulate space between ribs with 2 lb. density polyurethane bonded to both faces; ASTM C591.
   6. Reinforce for finish hardware provided under Section 08 7000; ANSI/SDI A250.8.

B. Exterior Stile-and-Rail Doors: Unitized, true tube type construction with joints continuously welded and ground smooth.
   1. ANSI/SDI A250.8, Level 3, Model 3, minimum 16 gauge (0.067") faces.
   2. Core: 2 lb. density polyurethane bonded to both faces; ASTM C591, U-factor of 0.10.
   3. Top Closure: Flush end channel closure with seal against moisture entry.
   4. Bottom Closure: Recessed end channel with drainage openings.
   5. Galvanizing: Hot-dipped zinc coating; ASTM A653 with A60 or G60 coating.
   6. Reinforce for finish hardware provided under Section 08 7000; ANSI/SDI A250.8.

C. Interior Doors: Full flush or stile-and-rail design as indicated.
   1. ANSI/SDI A250.8, Level 3, Model 2 (seamless), minimum 16 gauge (0.053") faces.
   2. Core: 2 lb. density polyurethane bonded to both faces; ASTM C591, U-factor of 0.10.
   3. Galvanizing: Hot-dipped zinc coating; ASTM A653 with A60 or G60 coating.
   4. Reinforce for finish hardware provided under Section 08 7000; ANSI/SDI A250.8.

D. Finish:
   1. After fabrication, fill all tool marks and surface imperfections, sand and dress smooth.
   2. Grind, fill, and dress all weld joints.
   3. Coat surface with factory primer for field finishing; ANSI/SDI A250.10.

2.3 METAL FRAMES

A. Type and Design:
   1. Provide frames in the dimensions and types shown on the Drawings, non-labeled or labeled as indicated, in 16 gauge (0.053") for interior frames and 14 gauge (0.067") for exterior frames.
   2. Galvanizing: Hot-dipped zinc coating; ASTM A653 with A60 or G60 coating.
   3. **Face welded construction.**
   4. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.
   5. Reinforce for finish hardware provided under Section 08 7000; ANSI/SDI A250.8.
   6. Frames Wider than 48": Reinforce with steel channel fitted tightly into frame head, flush with top.

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7. Frames Installed Back-to-Back: Reinforce with steel channels anchored to floor and overhead structure.

B. Finish:
1. After fabrication, fill all tool marks and surface imperfections, sand and dress smooth.
2. Grind, fill, and dress all weld joints.
3. Coat surface with factory primer for field finishing; ANSI/SDI A250.10.
4. Remove all areas of rust to bare metal; reprime prior to finish paint.

C. Frame Anchors:
1. Wood Stud Anchor: 18 gauge galvannealed steel, "lock-in" type.
2. Closed Metal Stud Wall Anchor: 18 gauge galvannealed steel, "lock-in" or factory welded type.
3. Wire Masonry Anchors: 3/16" diameter wire, "lock-in" type.
4. Masonry T-Anchors: 18 gauge galvannealed steel, "lock-in" type.
5. Existing Wall Anchor: 18 gauge galvannealed steel, "lock-in" or factory welded type.
6. Base Anchor: 16 gauge galvannealed steel, welded-in or adjustable; provide a minimum of 2 fasteners in each anchor.
7. Mullion Base Anchor: 16 gauge galvannealed steel, mullion slides over; provide a minimum of 2 fasteners in each anchor.
8. Corner Post Base Anchors: 12 gauge galvannealed steel, corner post slides over; provide a minimum of 2 fasteners in each anchor.

2.4 FINISH HARDWARE

A. Coordinate anchorage hardware and secure templates from the finish hardware supplier.

2.5 ACCESSORIES

A. Removable Glazing Stops (at window frames only):
1. Formed 20 gauge (0.032") sheet steel, butted corners; secured to frame with countersunk #6 zinc-coated tamper-proof screws.
2. Chemically treat and paint with a rust inhibitive primer all metal surfaces to which glazing stops are secured and the inside of the glazing stops to installation.

B. Glazed Light Frames:
1. 20 gauge (0.042") cold rolled steel frame, tightly mitered corners. At exterior locations, provide galvanized frames. Locate screws on room side.
2. Provide labeled frames at fire rated assemblies.
3. Finish: Factory baked enamel; custom color as selected by the Architect.
4. Model LoPro (LoPro-IS where required due to glazing thickness) by Anemostat or approved equal.

C. Interior Door Louvers:
1. 18 gauge (0.042") cold rolled steel frame, tightly mitered corners, inverted Y non-vision louver, 50% free area. Locate screws on inside side.
2. Prime finish for field painting under Section 09 9100.
3. Model AFDL by Anemostat or approved equal.

D. Exterior Door Louvers:
1. 18 gauge (0.042") cold rolled galvanized steel frame, tightly mitered corners, 22 gauge galvanized internal louver, 50% free area. Locate screws on inside side.
2. Prime finish for field painting under Section 09 9100.
3. Model AFDL by Anemostat or approved equal

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E. Transom Louvers:
1. 18 gauge (0.042") cold rolled steel frame, tightly mitered corners, inverted Y non-vision louver, 50% free area. At exterior locations, provide galvanized frames and attached mesh insect screens. Locate screws on inside side.
2. Prime finish for field painting under Section 09 9100.
3. Model AFDL-T by Anemostat or approved equal.

2.6 PREPARATION FOR HARDWARE

A. Coordinate anchorage hardware and secure templates from the finish hardware supplier.

B. Reinforcement: Reinforce components for hardware installation in accordance with ANSI/SDI A250.8 except where more stringent requirements are called for within this specification.
1. Provide box or channel type lock and closer reinforcements, continuous from top to bottom of door and welded to face sheets.

C. Punch single leaf frames to receive 3 silencers; provide one silencer per leaf at the head of double leaf frames unless gasketing is specified for that specific opening.

D. Factory prepare hardware locations in accordance with Section 08 7100.

E. Plaster Guards: 26 gauge galvanized steel plaster/dust guards, welded to frame at finish hardware cutouts where mortar, plaster, dust or other materials might obstruct hardware operation and to close off interior of openings.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FIRE RATED ASSEMBLIES

A. Install fire-rated doors and frames in accordance with their listings and NFPA 80.
1. Install smoke and draft control doors in accordance with NFPA 105.

3.3 FRAME INSTALLATION

A. Install frames and doors in accordance with the manufacturer's written recommendations and ANSI/SDI A250.8.

B. Set welded frames in position prior to beginning metal stud partition work; brace frames until permanent anchors are set.

C. Set anchors for frames as work progresses. Install anchors at hinge and strike levels. Place frames prior to construction of enclosing walls and ceilings; provide minimum 3 anchors per jamb at hinge and strike locations.
1. Where indicated in the plans, secure frames in place with screw fasteners at frame anchors to wall framing or post-installed expansion anchors at masonry and concrete. Countersink fasteners, fill with

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body putty, sand smooth and flush with no voids or ridges. Conceal installed fasteners so as to be invisible at exposed faces.

D. Set frames accurately into position, plumbed (within 1/8" in 10'), aligned, and braced securely until permanent anchors are set.
   1. Use temporary setting spreaders at all locations. Use intermediate spreaders to assure proper door clearances and header braces for grouted frames.

3.4 DOOR INSTALLATION

A. Install doors per manufacturer's recommendation.

B. Install hollow metal doors in frames using hardware specified in Section 08710 Finish Hardware.

C. Clearances at edge of doors.
   1. Between door and frame at head and jambs: 1/8".
   2. At meeting edges pairs of doors and at mullions: 1/8".
   3. At sills without thresholds: 5/8" maximum above finish floor.
   4. At sills with thresholds: 1/8" above threshold.

3.5 ADJUST AND CLEAN

A. Remove dirt and excess sealants, mortar or glazing compounds from exposed surfaces.

B. Final Adjustments: Adjust moving parts for smooth operation.
   1. Check and readjust operating finish hardware items in hollow metal work just prior to final inspection.
   2. Leave work in complete and proper operating condition.
   3. Remove defective work and replace with work complying with the specified requirements.

C. Immediately after erection, sand smooth all rusted and damaged areas of prime coat, and apply touchup of compatible air-drying primer submitted by the manufacturer.

D. Fill all dents, holes, etc. with metal filler, sand smooth and flush with adjacent surfaces - reprise and paint to match specified finish.

END OF SECTION 08 1110

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SECTION 08 3100 - ACCESS DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide ceiling and soffit access door where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturer's recommended installation procedures.

1.3 EXTRA MATERIALS

A. Keys: Provide for the Owner's use, 1 complete set of all tools and keys for each door that come packaged with the doors. Provide identification tag with each door key indicating key location.

B. Deliver keys to the Inspector of Record. Obtain and forward to the Architect, a signed receipt from the Inspector accepting delivery.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 CEILING/SOFFIT ACCESS DOORS

A. Non-Rated Flush Ceiling / Soffit Access: Access units with flanged frame flush with gypsum board and plaster ceilings and soffits:
   1. Construction: 14 gage steel door and flanged frame.
   2. Finish: Factory primed for painting on the job site.
   3. Locking: Provide each unit with cylinder locks and two keys per unit.
   4. Size: 22" by 36".
   5. Acceptable products:
      a. Model TM by J.L. Industries.
      b. Model DSC-214M by Karp Associates.
      c. Model L-DW by Larsen's Manufacturing.
      d. Style M by Milcor.
      e. Model NT by Nystrom.
      f. UF-5000 by Acudor Access Doors.

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PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as necessary with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install the work of this Section in strict accordance with the manufacturers' recommendations as approved by the Architect, anchoring all items firmly into position for long life under hard use.

C. Put operating components through at least five complete operating cycles, adjusting as required and achieving optimum ease of operation.

END OF SECTION 08 3100

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SECTION 08 3300 - COILING DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide overhead coiling doors where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 11 4000: Stainless steel sills at counter doors.
3. Division 26: General electrical requirements and connections to fire alarm.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures which will become the basis for accepting or rejecting actual installation procedures used on the Work.
3. Shop Drawings: Submit detailed drawings showing fabrication, installation, anchorage, and interface of the work of this Section with the work of other trades. Submit detailed drawings of special accessory components not included in manufacturer's product data.

B. Contract Closeout Submittals: Comply with requirements of Section 01 7700.
1. Operation and Maintenance manuals in accordance with requirements of Section 01 7820.

1.3 QUALITY ASSURANCE

A. Construct labeled fire doors in accordance with testing agency requirements for the rating required.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products by:
1. The Cookson Company, (559) 291-5537.
2. Cornell Iron Works, (916) 723-4919.
3. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 EXTERIOR INSULATED SERVICE DOORS

A. Curtain: Insulated interconnecting slats.
1. Height: 3" nominal.
2. Exterior Face: 18 gauge galvanized steel, ASTM A525 G90.
3. Interior Face: 24 gauge galvanized steel, ASTM A525 G90.

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4. Insulation: Rigid polyurethane foam filling the entire void.
5. Wind Loading: 20 psf.
6. Factory finish.

B. Bottom Bar:
1. Labeled Doors: 2 steel angles, factory finish to match door.
2. Safety Edge: 2 steel angles, factory finish to match door, with a sealed assembly with vinyl-coated nylon casing containing electric contacts. Activation of this device stops downward movement of door and causes door to return to full open position.

C. Guides: Steel angles, factory finish to match door curtain, of size and thickness required by door size, location and use, wind loading, and UL label. Flare top of guides for curtain entry.

D. Brackets: Steel plate, minimum of 1/4" thick, bolted to wall angle; factory finish to match door curtain.

E. Hood: Fabricated from 24 gauge minimum thickness galvanized steel, formed to fit curvature of brackets, factory finished to match door curtain.

F. Factory Finish:
1. Hot dipped galvanized G-90 coating consistent with ASTM A-653.
2. Bonderized coating for prime coat adhesion.
3. Factory applied thermosetting powder coating, minimum thickness of 2 mils.
4. Custom color as selected by Architect.

G. Weatherstripping:
1. Provide waterproof baffle for air infiltration control at hood.
2. Provide snap-on extruded vinyl at guides.
3. Provide lintel brush between lintel and door curtain.

2.3 DOOR ASSEMBLY

A. Barrel: Steel pipe supporting curtain and encasing torsion spring, designed for maximum deflection of 0.03" per foot of span and supported by grease-sealed ball bearings each end. Provide 5/16" thick steel support bracket each end.
1. Provide stainless steel end covers on stainless steel counter door support brackets.

B. Spring Counter Balance: Oil-tempered, heat-treated steel helical torsion springs bound in barrel and connected to torsion adjusting wheel. Access to adjusting wheel shall not require removal of hood.

2.7 OPERATION

A. Operation Required:
1. Exterior Service Doors: Electric motor operated.
2. Counter Doors: Electric motor operated
3. Fire-rated Counter Doors: Electric motor operated with automatic closing device.

B. Service Door - Motor Operated:
1. Gearhead motor recommended by door manufacturer, UL listed conforming to NEMA standards, removable without affecting emergency hand chain operation or limit switch setting.
a. Speed: 2/3 foot per second.
b. Drip-proof electric motor with gear reducer in oil bath.
2. Provide reversing contactor and limit switch for controlling raising and lowering of curtain. Provide

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protection device preventing damage from overcurrent and locked motor conditions.

3. Provide electrically interlocked emergency hand chain operator and chain.

4. Size motor as recommended by door manufacturer, 120V, 3 phase.
5. Control motor by means of a recessed push button operator with 3 buttons and keyed lockout switching. Conceal all conduit in wall.
6. Provide removable safety cover over motor and mechanisms matching material and finish of hood.

7. Motor Mounting:
   a. Horizontal front hood.

C. Counter Door - Motor Operated:
   1. Belt drive motor recommended by door manufacturer, drip-proof motor, UL listed conforming to NEMA standards, removable without affecting emergency limit switch setting.
      a. Speed: 1/2 foot per second.
   2. Provide reversing contactor and limit switch for controlling raising and lowering of curtain. Provide protection device preventing damage from overcurrent and locked motor conditions.
   3. Size motor as recommended by door manufacturer, 115V, 1 phase.
   4. Control motor by means of a recessed push button operator with 3 buttons and keyed lockout switching. Conceal all conduit in wall.
   5. Provide removable safety cover over motor and mechanisms matching material and finish of hood.

   6. Motor Mounting: Front hood.

D. Automatic Closing Device, Labeled Doors:
   1. Provide all labeled doors with a governor to control the downward speed of curtain. Release mechanism shall permit lifting of curtain by hand after automatic stop, and again allow automatic closing after emergency exit.
   2. Provide release mechanism actuated by 160 degree fusible links and coordinated with governor.
   3. Provide release mechanism actuated by smoke detectors and coordinated with governor.
   4. Provide UL listed adjustable time-delay relay (10 seconds maximum) to prevent false dropping of door due to momentary electric blackouts and fire alarm tests.
   5. Normal operation of door shall not harm automatic releasing devices or cause releasing system to require resetting.
   6. Activation of the release mechanism shall initiate a fire alarm signal.

2.8 LOCKING MECHANISM

A. Motorized Doors: Provide integral gearing locking mechanism to prevent opening of door except under normal operation methods.

B. Push-up Doors: Pad lockable slide bolt on bottom bar at each jamb extending into slots in guides.

2.9 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

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A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position for long life under hard use.

C. Upon completion of the installation, put all items through at least 10 operating cycles. Make required adjustments and assure that components are in optimum operating condition.

D. Labeled Doors: Install in strict accordance with NFPA 80.

E. Hoods: Do not mount hoods until all other work (including hanging curtains) in the area is completed. Replace damaged hoods.

3.3 DEMONSTRATION

A. Upon completion and prior to the acceptance of the work of this Section, schedule and conduct a meeting with the Owner and his personnel to train and thoroughly familiarize them with information necessary to operate and maintain the work. Include, but do not limit the training to:
   1. Operation and maintenance manuals;
   2. Safety procedures and requirements;
   3. Manufacturer's recommended cleaning procedures;
   4. Identification systems;
   5. System operation and features including, but not limited to:
      a. Start-up;
      b. Control sequences;
      c. Shut down;
      d. Controls manipulation;
      e. Emergency procedures;
      f. Noise/vibration adjustment;
   6. System maintenance.

B. Demonstration Meeting:
   1. Demonstrate each door through a minimum of 2 cycles.
   2. Prepare and execute In-Service Certification form and submit with closeout documentation.

END OF SECTION 08 3300

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SECTION 08 5620 - PASS AND OBSERVATION WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide pass and observation windows, which are not specifically described in other Sections of these Specifications, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 08 1110: Hollow metal doors and frames
3. Section 08 8100: Glazing for pass windows.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer’s recommended installation procedures.
3. Shop Drawings: Submit details of each frame type, elevations of door designs, details of openings, and details of construction, installation, and anchorage.

1.3 EXTRA MATERIALS

A. Deliver specified keys to the Inspector of Record. Obtain and forward to the Architect, a signed receipt from the Inspector accepting delivery.

PART 2 - PRODUCTS

2.1 SLIDING SERVE WINDOWS

A. Acceptable Products: Self-Closing, Horizontal by-passing sliding window (one pane fixed, one operable), with sliding screen.
1. CRL SCDW Series Self-Closing Sliding Service Window by C.R. Laurence, (800) 421-6144.
2. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Maximum Force to Operate: 5 pounds; CBC 11B-309.4.

C. Materials:
1. Frames and Glass Channels: Heavy type 6063-T5 aluminum extrusions.
2. Screens: Standard black fiberglass.
3. Finish: Black anodized aluminum; matt black ceramic powder coat.
4. Glass: Provided under Section 08 8100. Type and color to match adjacent glass as shown on Door and Window Schedules and elevations.
5. Locks: Provide cylinder keyed locks. with 2 keys per opening, and 2 master keys.

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6. Counter Seal: Provide wool pile counter seal typical.

D. Coordinate with hollow metal frames supplier for sized and tolerances required. Nominal sizes shown on drawings.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Placing Frames:
1. Install frames and glass per manufacturer's recommendation.
2. Attach to mullions by concealed screws through channel walls.

3.3 ADJUST AND CLEAN

A. Final Adjustments:
1. Check and readjust operating finish hardware items to work just prior to final inspection.
2. Leave work in complete and proper operating condition.
3. Remove defective work and replace with work complying with the specified requirements.

END OF SECTION 08 5620

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SECTION 08 5625 - WINDOW TALK-THRU DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide window talk-thru devices, which are not specifically described in other Sections of these Specifications, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 08 1110: Metal doors and frames
3. Section 08 8100: Glazing for pass windows.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer’s recommended installation procedures.
3. Shop Drawings: Submit details of each frame type, elevations of door designs, details of openings, and details of construction, installation, and anchorage.

1.3 EXTRA MATERIALS

A. Deliver specified keys to the Inspector of Record. Obtain and forward to the Architect, a signed receipt from the Inspector accepting delivery.

PART 2 - PRODUCTS

2.1 WINDOW TALK-THRU DEVICES

A. Acceptable Products: No draft talk-thru device.
1. C.R. Laurence model 834, 1.800.587.7501
2. Creative Industries, Inc. model 6-D, 1.317.248.1102
3. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Materials:
1. Stainless steel front and back plates
2. Black rubber spacer
3. Coordinate with glass thickness indicated on drawings

2.2 BATTERY OPERATED WINDOW TALK-THRU DEVICES

A. Acceptable Products: Electronic talk-thru devices.
1. Model TTU1DJB1 by C.R. Laurence.

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2. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Materials:
1. Solid Aluminum front plate.
2. Black rubber spacer.
3. Coordinate with glass thickness indicated on drawings.
4. Two-way hands free.
5. Listen volume, talk volume, on-off switch and headset.
6. Separate channel for each unit when adjacent to other devices
7. Gooseneck microphone
8. Charger power supply: 120VAC, 60 Hz Input, 15 VDC, 175 mA Output.
9. Audio Power: 2 watts per amplifier, (2 amplifiers)
10. Batteries: Ni-Cad Batteries, operation time 10 hours, charge time 6 hours
11. TTU-1HS, wireless headset

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Placing Devices: Install devices per manufacturer's recommendation.

3.3 ADJUST AND CLEAN

A. Final Adjustments:
1. Check and readjust items in work just prior to final inspection.
2. Leave work in complete and proper operating condition.
3. Remove defective work and replace with work complying with the specified requirements.

END OF SECTION 08 5625

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SECTION 08 7100 - FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Door Hardware.

B. Related Sections:
   Section 06 2000 - Rough Carpentry: Finish Hardware Installation
   Section 07 9200 - Joint Sealers – exterior thresholds
   Section 08 1100 - Metal Doors and Frames
   Section 08 2100 - Wood Doors
   Section 08 4000 - Entrances and Storefronts

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.
   1. Windows.
   2. Cabinets, including open wall shelving and locks.
   3. Signs, except where scheduled.
   4. Toilet accessories, including grab bars.
   5. Installation.
   6. Rough hardware.
   7. Folding partitions, except cylinders where detailed.
   8. Access doors and panels, except cylinders where detailed.
   9. Corner Guards.

1.2 REFERENCES:

Use date of standard in effect as of Bid date.

A. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
B. ADA – Americans with Disabilities Act of 2010
C. BHMA – Builders Hardware Manufacturers Association
D. CBC – 2025 California Building Code.
E. DHI – Door and Hardware Institute
F. NFPA – National Fire Protection Association
   NFPA 80 – Fire Doors and Windows
   NFPA 105 – Smoke and Draft Control Door Assemblies
   NFPA 252 – Fire Tests of Door Assemblies
G. UL – Underwriters Laboratories

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UL10C – Positive Pressure Fire Tests of Door Assemblies.
UL 305 – Panic Hardware

H. WHI – Warnock Hersey Incorporated State of California Building Code
I. Local applicable codes
J. SDI – Steel Door Institute
K. WIC – Woodwork Institute of California
L. AWI – Architectural Woodwork Institute
M. NAAMM – National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS: Submit six copies of schedule per Section 01 3300. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:

1. Type, style, function, size, quantity and finish of hardware items.
2. Use BHMA Finish codes per ANSI A156.18.
3. Name, part number and manufacturer of each item.
4. Fastenings and other pertinent information.
5. Location of hardware set coordinated with floor plans and door schedule.
6. Explanation of abbreviations, symbols, and codes contained in schedule.
7. Mounting locations for hardware.
8. Door and frame sizes, materials and degrees of swing.
9. List of manufacturers used and their nearest representative with address and phone number.
10. Catalog cuts.
11. Date of jobsite visit.

B. Bid and submit manufacturer’s updated/improved item if scheduled item is discontinued.

C. Make substitution requests in accordance with specification section 01 2580. Include product data and indicate benefit to the Project. Furnish operating samples on request.
1. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.

D. Contract Closeout Submittals: Comply with requirements of Section 01 7700.
1. Operation and maintenance manuals in accordance with requirements of Section 01 7820, for each type of hardware.

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E. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE:

A. Qualifications:
1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.
a) Responsible for detailing, scheduling and ordering of finish hardware.

B. Hardware: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.
1. Where scheduled item is now obsolete, bid and furnish manufacturer's updated item at no additional cost to the project.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).
1. Permanent keys and cores: secured delivery direct to Owner's representative.

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

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1.6 PROJECT CONDITIONS:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.

B. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.
   1. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

1.7 SEQUENCING AND COORDINATION:

A. Coordinate with concrete.

B. Reinforce walls for wall-mounted hardware, including wall stops and stainless steel guard rails.

C. Coordinate finish floor materials and floor-mounted hardware.

D. Furnish manufacturer templates to door and frame fabricators.
   1. Ensure proper blocking in wood doors to support wood screws for panic hardware and door closers.
   2. Ensure proper reinforcement in metal doors and frames to support machine screws for panic hardware and door closers.

E. Use hardware consultant to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1.8 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties:
   1. Locksets: Three years.
   2. Exit Devices: Three years.
   3. Closers: Thirty years.
   4. Other Hardware: Two years.

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1.9 COMMISSIONING:

A. Conduct these tests prior to request for certificate of substantial completion:

1. Test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.

1.10 REGULATORY REQUIREMENTS:

A. Locate latching hardware between 34” to 44” above the finished floor, per California Building Code, Section 1010.1.9.2 and 11B-404.2.7.

1. Locate panic hardware between 36” to 44” above the finished floor.

B. Handles, pull, latches, locks, other operating devices: readily openable without tight grasping, tight pinching, or twisting of the wrist to operate. California Building Code 1010.1.9.1 and 11B-309.4.

C. Adjust doors to open with not more than 5.0 lbs pressure to open at exterior doors and 5.0 lbs at interior doors. As allowed per California Building Code, Section 11B-404.2.9, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15 lbs.

D. Adjust door closer sweep periods so that from an open position of 90 degrees, the door will take at least 5 seconds to move to a point 12 degrees from the latch, measured to the landing side of the door, per California Building Code Section 11B-404.2.8.1.

E. Smooth surfaces at bottom 10” of push sides of doors, facilitating push-open with wheelchair footrests, per California Building Code Section 11B-404.2.10.

F. Door opening clear width no less than 32”, measured from face of frame stop, or edge of inactive leaf of pair of doors, to door face with door opened to 90 degrees. Hardware projection not a factor in clear width if located above 34” and the hardware projects no more than 4”. California Building Code Section 11B-404.2.3, 11B-404.2.4, and 1010.1.1.

G. Door opening height shall not be less than 80 inches. Doors closers and door stops shall be permitted to be 78 inches minimum above the floor. California Building Code Section 11B-404.2.3 and 1010.1.1.1.

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H. Thresholds: floor or landing no more than 1/2” below the top of the threshold of the doorway. Change in level between 1/4“ and 1/2”: beveled to slope no greater than 1:2 (50 percent slope). California Building Code Section 11B-404.2.5.

I. Floor stops: Do not locate in path of travel. Locate no more than 4” from walls.

J. Pairs of doors: limit swing of one leaf to 90 degrees to protect persons reading wall-mounted tactile signage.

K. New Buildings on a K-12 Public School campus shall be provided with locks which allow the doors to classrooms and any other room with an occupant load of five or more persons to be locked from the inside. Locks shall conform to the specification and requirements of Section 1010.1.11. Exceptions include doors that are normally locked form the outside, relocatable moved within the same campus, and reconstruction projects.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers and their abbreviations used in this schedule:
IVE H. B. Ives
LCN LCN Closers
SCH Schlag Lock Company
VON Von Duprin
ZER Zero International

2.2 HINGING METHODS:

A. Note: drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.

B. Conform to manufacturer’s published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer’s standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.

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C. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.
   1. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins.
   2. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.

D. Continuous Hinges:
   1. Geared-type aluminum at exteriors.
      a) Use wide-throw units where needed for maximum degree of swing, advise architect if commonly available hinges are insufficient.

2.3 LOCKSETS and LATCHSETS:

A. Mortise Locksets and Latchsets: as scheduled.
   1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
   2. Latchbolts: 3/4 inch throw stainless steel anti-friction type.
   3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
      a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
   4. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
   5. Scheduled Lock Series and Design: Schlage L series, 06A design.
   6. Certifications:
      a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
      b) ANSI/ASTM F476-84 Grade 31 UL Listed.
   7. Comply with CBC Section 11B-309.4.

B. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled.
   1. Chassis: cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.
   2. Locking Spindle: stainless steel, integrated spring and spindle design.
   3. Latch Retractors: forged steel. Balance of inner parts: corrosion-resistant plated steel, or stainless steel.

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4. Latchbolt: solid steel.
5. Backset: 2-3/4" typically, more or less as needed to accommodate frame, door or other hardware.
6. Lever Trim: accessible design, independent operation, spring-cage supported, minimum 2” clearance from lever mid-point to door face.
7. Electric operation: Manufacturer-installed continuous duty solenoid.
8. Strikes: 16 gage curved steel, bronze or brass with 1” deep box construction, lips of sufficient length to clear trim and protect clothing.
9. Lock Series and Design: Schlage D series, “Rhodes” design.
10. Certifications:
    a) ANSI A156.2, 1994, Series 4000, Grade 1.
    b) UL listed for A label and lesser class single doors up to 4ft x 8ft.
11. Comply with CBC Section 11B-309.4.

2.4 EXIT DEVICES / PANIC HARDWARE

A. General features:
1. Independent lab-tested 1,000,000 cycles.
2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
3. 0.75-inch throw deadlocking latchbolts.
4. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
5. No exposed screws to show through glass doors.
6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
7. Releasable in normal operation with 5-lb. maximum operating force.
8. Flush end cap design as opposed to typical "bottle-cap" design end cap.
9. Glazing bead kits as necessary for high profile vision light frames.
10. Comply with CBC Section 11B-309.4. SFM Standard 12-10-3, section 12-10-302.

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2.5 CLOSERS

A. Surface Closers:
1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast-iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Non-sized and adjustable. Place closers inside building, stairs and rooms.
5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
6. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 11B-404.2.9, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.
7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units. EDA arms: rigid main and forearm, reinforced elbow.
9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
10. Exterior doors do not require seasonal adjustments in temperatures from 120 degrees F to –30 degrees F, furnish data on request.
11. Non-flaming fluid, will not fuel door or floor covering fires.
12. Pressure Relief Valves (PRV): unsafe, not permitted.

2.6 OTHER HARDWARE

A. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

B. Door Stops: Provide stops to protect walls, casework or other hardware.
1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.
2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.

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C. Seals: Finished to match adjacent frame color. Resilient seal material: polypropylene, nylon brush, or solid high-grade neoprene. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability. Proposed substitutions: submit for approval.
   1. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
   2. Non-corroding fasteners at in-swinging exterior doors.

D. Thresholds: As scheduled and per details. Comply with CBC Section 11B-404.2.5. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.
   1. Exteriors: Seal perimeter to exclude water and vermin. Use Dow Corning 795 Silicone or approved equal. Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
   2. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.

E. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

F. Through-bolts: Do not use. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

G. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

2.7 FINISH:

A. Generally BHMA 626 Satin Chromium and BHMA 313 Duranodic Dark Bronze.
   1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.

B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

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C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

2.8 KEYING REQUIREMENTS:

A. Key System: Schlage keyway, interchangeable core throughout. Key blanks available only from factory-direct sources, not available from after-market keyblank manufacturers. For estimate use factory GMK charge. Initiate and conduct meeting(s) with Owner to determine system keyway(s), keybow styles, and structure. Furnish Owner's written approval of the system.

1. Existing master key system.
2. Construction keying: furnish temporary keyed-alike cores. Remove at substantial completion and install permanent cylinders/cores in Owner's presence. Demonstrate that construction key no longer operates.
3. Temporary cylinders/cores remain Supplier's property.
4. Furnish 10 construction keys.
5. Furnish 2 construction control keys.

B. Key Cylinders: furnish 6-pin solid brass construction.

C. Cylinders/cores: keyed at factory of lock manufacturer where permanent records are maintained. Locksets and cylinders same manufacturer.

D. Permanent keys: use secured shipment direct from point of origination to Owner.
1. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.

E. Bitting List: use secured shipment direct from point of origination to Owner at completion.

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PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS:

A. Experienced craftsperson with a resume of successful projects. Can readily differentiate between number 2 and number 3 phillips-drive screws and screwdrivers. Can readily differentiate between #10-24 machine screws and drywall screws, and can explain correct usages of these items.

3.2 PREPARATION:

A. Ensure that walls and frames are square and plumb before hardware installation.

B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.
1. Notify Architect of any code conflicts before ordering material.
2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 34 inches to 44 inches above the finished floor, per CBC Section 11B-404.2.7.
3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

C. Existing frames and doors scheduled to receive new hardware: carefully remove existing hardware, tag and bag, and turn over to Owner.
1. Metal doors/frames: Weld or fasten with screws: filler pieces in existing hardware cut-outs and mortises not scheduled for re-use by new hardware. Leave surfaces smooth - - no applied patches.
2. Remove unused existing floor closers, fill empty floor closer cavities with concrete.

3.3 INSTALLATION

A. Install hardware per manufacturer’s instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.

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1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
4. Replace fasteners damaged by power-driven tools.
5. Drawings typically depict doors at 90 degrees, doors will swing to maximum allowable. Install door closers to maximum allowable swing in conjunction with door stops.

B. Locate floor stops no more than 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.

C. Drill pilot holes for fasteners in wood doors and/or frames.

D. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.4 ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to Owner’s satisfaction.
2. Adjust doors to fully latch with no more than 1 pound of pressure.

3.5 DEMONSTRATION:

A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

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3.6 PROTECTION/CLEANING:

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.7 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

Abbreviation	Name
B/O	By Others
IVE	H.B. Ives
LCN	LCN Commercial Division
SCH	Schlage Lock Company
ZER	Zero International Inc

149611 OPT0477465 Version 1

Legend:
Link to catalog cut sheet
Electrified Opening

Hardware Group No. 01

For use on Door #(s):
1 2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	CLASSROOM LOCK	LV9070T 06A 06A		626	SCH
1	EA	FSIC CORE	23-030 (TO MATCH BLD STD)		626	SCH
1	EA	LOCK GUARD	LG13		US32D	IVE
1	EA	SURFACE CLOSER	4050A EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS18S		BLK	IVE
1	SET	GASKETING(@2 JAMBS)	328AA		AA	ZER
1	EA	GASKETING (HEAD)	429AA-S		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	102A (OR AS DETAILED)		A	ZER

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Hardware Group No. 02

For use on Door #(s):
4

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	CLASSROOM SECURITY W/ OUTSIDE INDICATOR	LV9071T 06A 06A OS-LOC		626	SCH
2	EA	FSIC CORE	23-030 (TO MATCH BLD STD)		626	SCH
1	EA	LOCK GUARD	LG13		US32D	IVE
1	EA	SURFACE CLOSER	4050A EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS18S		BLK	IVE
1	SET	GASKETING(@2 JAMBS)	328AA		AA	ZER
1	EA	GASKETING (HEAD)	429AA-S		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	102A (OR AS DETAILED)		A	ZER

Hardware Group No. 03

For use on Door #(s):
3

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	PRIVACY W/DB & IND W/ OUTSIDE INDICATOR	LV9496T 06A 06A L583-363 XL11-986 XL13-439		626	SCH
1	EA	FSIC CORE	23-030 (TO MATCH BLD STD)		626	SCH
1	EA	SURFACE CLOSER	4050A EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS18S		BLK	IVE
1	SET	GASKETING(@2 JAMBS)	328AA		AA	ZER
1	EA	GASKETING (HEAD)	429AA-S		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	102A (OR AS DETAILED)		A	ZER

Hardware Group No. 04

For use on Door #(s):
5

Provide each RU door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	ROLL UP DOOR AND HARDWARE- FIRE RATED	BY DOOR MFG./ SUPPLIER	TBD	B/O

-CYLINDER SUPPLIED BY 08 71 00, AS REQ'D.
-DOOR C/W HARDWARE SUPPLIED BY DOOR MFG., LISTED ITEMS FOR REFERENCE ONLY.

END OF SECTION 08 7100

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SECTION 08 8100 - GLASS GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide glazing and glazing accessories where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 06 4200: Glazing for casework.
3. Section 07 9210: Sealants and caulking.
4. Section 08 5620: Glazing for pass and observation windows is specified in this Section.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation.
3. Samples: Submit 2 samples, 4" x 4" in size, of each type of glass and gasket proposed for use.

B. Contract Closeout Submittals: Comply with requirements of Section 01 7700.
1. Manufacturer's recommended cleaning procedures for each type of glazing panel.

1.3 QUALITY ASSURANCE

A. In addition to complying with pertinent codes and regulations of governmental agencies having jurisdiction, comply with pertinent recommendations contained in:
1. Flat Glass Marketing Association:
a. "Glazing Sealing Systems Manual";
b. "Glazing Manual".

B. Identification of Safety Glazing:
1. Identify each light of safety glass material installed in hazardous locations as defined in CBC 2406.3 by a label that complies with CBC 2403.1 and which will specify the labeler, whether manufacturer or installer, and state that safety glazing material has been utilized in such installations.
2. The label shall be legible and visible from the inside of the building after installation and shall be acid etched, sand blasted, ceramic fired laser etched, or embossed.

C. Provide tinted or coated glazing panels by one and the same manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01 6600.

B. During storage and handling of glass, provide cushions at edges to prevent impact damage.

1.5 SPECIAL WARRANTY

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A. In addition to the warranty requirements of the Contract Documents, submit 2 original copies of glazing manufacturer's written warranty, countersigned by the glazing subcontractor and the Contractor, covering warranties listed below and including removal of the failed or deteriorated glazing, furnishing the matching replacement glazing, and properly installing the matching replacement glazing.

1. Sealed Insulating Glass Units: Warranty units for **5 years** against seal failure, interpane dusting or misting.
2. Laminated Glass: Warranty glass for **5 years** against failure of lamination. Failure of lamination shall include, but shall not be limited to, evidence of delamination, loss of transparancy, change in color, change in light transmittance, deterioration of concealed glass coating or plastic sheet coating if provided, loss of acoustic rating, and other forms of deterioration due to defective materials or workmanship.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 GLASS

A. General:
1. For all glass, provide the type and thickness shown on the Drawings or specified herein.
2. Where type or thickness, or both, are not shown on the Drawings or specified herein, provide type and thickness directed by the Architect.

B. Primary Glass:
1. Provide primary glass complying with ASTM C1036.
2. Clear Float Glass: Type I, class 1 (transparent), quality q3 (glazing select).
3. Tinted Float Glass: Type I, class 2 (heat absorbing and light reducing), quality q3 (glazing select), of tint as indicated or specified.

C. Tempered Glass: Grade B (fully tempered), style I (uncoated surfaces), type I (float), class 1 (transparent), quality q3 (glazing select). All tempered glass is to be safety glass and meet human impact loads indicated below.
1. Tints: Tints as indicated or specified.
2. Sizes and Cutting:
   a. Prior to tempering, cut glass to required sizes as determined by accurate measurements of the openings to be glazed, making allowances for required edge clearances.
   b. Cut and process edges in accordance with the glass manufacturer's recommendations.
   c. Do not cut or treat edges in the field.

D. Human Impact Loads: Individual glazed areas, including glass mirrors, in hazardous locations as defined by CBC Section 2406.4 shall comply with CBC Sections 2406.1 through 2406.5.

2.3 OTHER MATERIALS

A. Provide other materials, including but not limited to shims, setting blocks, glazing tape, etc., not specifically described but required for a complete and proper installation, as recommended by the manufacturer.

2.4 EXTERIOR GLAZING ASSEMBLIES

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A. Air and Vapor Seals: Provide completed assemblies that maintain continuity of building enclosure air barrier:
   1. In conjunction with joint sealer materials described in other sections.
   2. To utilize the inner pane of multiple pane sealed units for the continuity of the air barrier seal.
   3. To maintain a continuous air barrier throughout the glazed assembly from glass pane to heel bead of glazing sealant.

2.5 GLAZING PANEL TYPES

A. **Type A:** 1/4" thick, clear, fully tempered glass.

B. **Type B:** 1" thick clear insulating glass unit; fully tempered.
   1. Outdoor Lite: 1/4" fully tempered clear glass with PPG Solarban 60 Low-E coating inside facing surface.
   2. Air Space: 1/2" air space filled with gas (90% Argon, 10% air).
   3. Indoor Lite: 1/4" clear fully tempered glass.
   4. NFRC U-Value: 0.24 BTU/hr ft^2 ^oF (winter nighttime).
   5. Solar Heat Gain Coefficient: 0.39 maximum.
   6. Light to Solar Gain: 1.79.
   7. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   8. Edge Spacers: Aluminum, bent and soldered corners; color as selected by Architect.
   9. Edge Seal: Glass to elastomer with supplementary silicone sealant.
   10. Purge interpane space with dry hermetic air.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Clean glazing channels, stops, and rabbets to receive the glazing materials, making free from obstructions and deleterious substances which might impair the work.
   1. Remove protective coatings which might fail in adhesion or interfere with bond of sealants.
   2. Comply with manufacturers' instructions for final wiping of surfaces immediately prior to application of primer and glazing compounds or tapes.
   3. Prime surfaces to receive glazing compounds in accordance with manufacturers' recommendations.

3.2 INSTALLATION

A. Inspect each piece of glass immediately prior to start of installation.
   1. Do not install items which are improperly sized, have damaged edges, or are scratched, abraded, or damaged in any other manner.
   2. Do not remove labels from glass until so directed by the Architect.
   3. Install glass so distortion waves, if present, run in the horizontal direction.

B. Locate setting blocks at sills one quarter of the width of the glass in from each end of the glass, unless otherwise recommended by the glass manufacturer.
   1. Use blocks of proper size to support the glass in accordance with the manufacturer's recommendations.
   2. Provide spacers for all glass sizes larger than 50 united inches, to separate glass from stops; except where continuous glazing gaskets or felts are provided.
      a. Locate spacers no more than 24" apart, and no closer than 12" to a corner.

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b. Place spacers opposite one another.
c. Make bite of spacer on glass 1/4" or more.

C. Set glass in a manner which produces the greatest possible degree of uniformity in appearance.

D. Do not use two different glazing materials in the same joint system unless the joint use is approved by the Architect.

E. Mask, or otherwise protect, surfaces adjacent to installation of sealants. Provide black continuous caulking sealant bead at all glass to metal frame joints, over exposed edge of tape, interior and exterior.

F. Miter-cut and seal the joints of glazing gaskets in accordance with the manufacturer's recommendations, to provide watertight and airtight seal at corners and other locations where joints are required.

3.3 PROTECTION

A. Protect glass from breakage after installation by promptly installing streamers or ribbons, suitably attached to the framing and held free from glass. Do not apply warning markings, streamers, ribbons, or other items directly to the glass except as specifically directed by the Architect.

3.4 CLEAN-UP

A. Clean glass thoroughly prior to final acceptance. Take special care not to remove materials which may scratch glass. **Scratched glass will be rejected and replaced prior to acceptance.**

END OF SECTION 08 8100

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SECTION 08 9100 - LOUVERS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide the work of this Section as indicated on the drawings and as specified.

B. Related Sections:
1. Documents affecting the Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 06 1100: Carpentry
3. Section 07 9210: Perimeter sealant joints.
4. Section 08 1110: Louvers in metal doors.
6. Division 23 0000: Air-handling louvers connected to ductwork.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturers recommended installation procedures.
3. Shop Drawings: Submit shop drawings for fabrication and erection of louver units and accessories. Include plans, elevations, and details of sections and connections to adjoining work. Indicate materials, finishes, fasteners, joinery, and other information to determine compliance with specified requirements.

1.3 QUALITY ASSURANCE

A. Performance Requirements: Where louvers are indicated to comply with specific performance requirements, provide units whose performance ratings have been determined in compliance with Air Movement and Control Association (AMCA) Standard 500.
1. Provide louvers with AMCA Certified Ratings Seal evidencing that product complies with the above requirement.

B. SMACNA: Comply with SMACNA "Architectural Sheet Metal Manual" recommendations for fabrication, construction details and installation procedures, except as otherwise indicated.

C. Field Measurements: Verify size, location and placement of louver units prior to fabrication.

1.4 SPECIAL WARRANTY

A. PVDF (Polyvinylidene Fluoride) Coating Warranty: In addition to the warranty requirements of the Contract Documents, submit 2 original copies of coating applicator's 5-Year warranty. Warrant coating against peeling, blistering, flaking, chipping, checking, chalking in excess of a numerical rating of 8 when measured in accordance with ASTM D659, and fading and color change in excess of 5 NBS units when measured in accordance with ASTM D2244.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

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A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Subject to compliance with requirements, provide products of 1 of the following:
   1. Airline Products Co.
   2. The Airolite Co.
   3. American Warming and Ventilating Co.
   4. Construction Specialties, Inc.
   5. Industrial Louvers, Inc.
   6. Ruskin Manufacturing Co.
   7. Louvers and Dampers, Inc.
   8. Architectural Louvers.
   9. Safe-air/Dowco.
   10. Vulcan Vent Co.

2.2 HORIZONTAL BLADE LOUVERS

A. Provide louvers of size and depth indicated, with blades of profile, slope and spacing indicated, or if not indicated, to meet performance requirements.

B. Material: Aluminum extrusions, ASTM B2221, alloy 6063-T52.

C. Extrusion Thickness: Not less than 0.081" for blades and frames.

D. Factory Finish PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system; 70% KYNAR 500 resin or HYLAR 5000 resin, 1.0 mil minimum dry film thickness.

E. Furnish units complying with following performance requirements:
   1. Free area: Not less than 45% on a 48" x 48" sized louver.
   2. Static pressure loss: Not more than 0.15" of water gage at an airflow of 1000 fpm free air velocity.
   3. Water penetration: Not more than 0.05 oz. per sq. ft. of free area at an intake airflow of 100 fpm free area velocity.
   4. AMCA ceritification: Furnish units bearing AMCA Certified Ratings seal.

F. Horizontal Drainable Blades: Units designed to collect and drain water to exterior at sill by means of gutters in front edges of blades, and channels in jambs and mullions.

2.3 LOUVER SCREENS

A. Provide removable bird screens for exterior louvers of 1/2" mesh, 0.063" aluminum wire.

B. Fabricate screen frames of same metal and finish as louver units to which secured. Provide frames consisting of U-shaped metal for permanently securing screen mesh.

C. Locate screens on inside face of louvers. Secure screens to louver frames with machine screws spaced at each corner and at 12" on center between.

2.4 FASTENERS

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A. Provide stainless steel or aluminum screws of types, gages, and lengths to suit installation conditions. Use Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

2.5 WUI Compliant Vent

A. "Vulcan Vent" model VG1418S or approved equal.
B. Approved for use in the Wildland Urban Interface (W.U.I.)
C. Tested and listed to ASTM2886 and ICC-ESL listing 1300 and 1-hour fire rated ICC-ESL listing 1299.
D. Intumescent core 5mm Hexagonal Metrix-Aluminum with intumescent coating.
E. Ember mesh 14 Mesh-304 Stainless Steel.

2.6 FABRICATION

A. Fabricate frames including integral sills to suit adjacent construction with tolerances for installation, including application of sealants in joints between louvers and adjoining work.

B. Provide supports, anchorages, and accessories required for complete assembly.

C. Provide vertical mullions of type and at spacing indicated but no further apart than recommended by manufacturer or 72" on center, whichever is less. At horizontal joints between louver units provide horizontal mullions except where continuous vertical assemblies are indicated.

D. Provide sill extensions and loose sills made of same material as louvers, where indicated, or required for drainage to exterior and to prevent water penetrating to interior.

E. Join frame members to one another and to louver blades by welding except where field bolted connections between frame members are made necessary by size of louvers. Maintain equal blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate and place louver units plumb, level, and in proper alignment with adjacent work.

B. Use concealed fasteners wherever possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make weathertight connection.

C. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers.

D. Protect galvanized and aluminum surfaces against corrosion and galvanic action by application of a heavy coating of bituminous paint on surfaces which will be in contact with concrete, masonry, or dissimilar metal.

END OF SECTION 08 9100

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SECTION 09 2400 - CEMENT PLASTER

PART 1 - GENERAL

1.1 SUMMARY

A. Provide lath and plaster where indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 06 1000: Plywood sheathing.
3. Section 07 6200: Flashing and sheet metal.
4. Section 07 9210: Elastomeric joint sealants.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.
3. Samples:
a. Submit samples of the proposed accessories.
b. Provide 24" x 24" finish coat samples (on 1" foam board) of each plaster texture for approval by Architect 14 days prior to commencing work.

1.3 QUALITY ASSURANCE

A. In addition to complying with pertinent codes and regulations of governmental agencies having jurisdiction, comply with materials handling and workmanship provisions of the "Reference Specifications" of the California Lathing and Plastering Contractors Association. Interior and exterior lath and plaster shall comply with CBC Chapter 25.

B. Colors: Provide finish selections indicated in the Finish Schedule.
1. Acceptable Manufacturers: The products and manufacturers specified in the Finish Schedule are for purposes of establishing color and quality. Refer to each Specification Section for additional manufacturers and Section 01 2500 for substitution requirements.
2. Manufacturer’s Standard Colors and Finishes: Where Finish Schedule specifies a manufacturer’s standard color or finish, Architect makes no guarantee that matching colors or finishes are available as other manufacturer’s “standard colors” from the listing of acceptable manufacturers. Contractor shall be responsible for providing colors matching those indicated on the Drawings.
3. Custom Colors: Where Finish Schedule indicates a specific manufacturer’s colors, other acceptable manufacturers shall provide matching custom colors where a standard color is not acceptable.

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PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 LATH

A. Provide corrosion resistant lath and lath accessories.

B. Welded Wire Metal Lath: ASTM C933; galvanized, self-furring.
1. Wood and Metal Vertical Supports:
a. 16" On-center: 1.00 lb/sq yd, 1-1/2" square openings; Structalath III by Structa Wire Corp., IAPMO ER 2017.
b. 24" On-center: 2.2 lb/sq yd, 2" square openings; V-Truss Wall & Ceilings by Structa Wire Corp., IAPMO ER 2017.
2. Wood and Metal Horizontal Supports:
a. Maximum 24" On-center: 2.2 lb/sq yd, 2" square openings; V-Truss Wall & Ceilings by Structa Wire Corp., IAPMO ER 2017.

C. Paper Backing (Water Resistive Barrier): Asphalt-impregnated Type "D" paper; CBC Section 2510.6.

D. Self-Furring Lath:
1. Use of self-furring lath is permitted subject to satisfactory job-site demonstration of installation.
2. Lath shall be furred out 1/4" when installed over solid surfaces such as plywood; DSA IR 25-4.

E. Lath Fasteners:
1. Staples:
a. At vertical wood supports: Minimum 16 gauge, minimum 3/4" crown, of sufficient length to penetrate sheathing and framing members minimum of 1" into wood structural members.
b. At horizontal wood supports: Minimum 9 gauge, barbed, minimum 3/4" crown, of sufficient length to penetrate sheathing and framing members minimum of 1-1/2" into wood structural members.
2. Nails: 6d common or roofing nail with 7/16" head, 3/4" minimum embedment into stud exclusive of sheathing; ASTM C1063.
3. Screws: 7/16" pan wafer head, Type S, 0.120" shank; ASTM C1002 and/or C 954.
a. Into Wood: #12 zinc pan head; 5/8" minimum penetration into wood.
1) 1-1/4" minimum penetration into stud where applying lath over insulation board.
b. Into Metal: Self-drilling and tapping; penetrate steel thickness plus 3 threads.
4. Powder Actuated Fasteners: Use fastener recommended for the specific use intended.
a. For concrete and masonry substrates only.
b. Factory washer (disc).
c. Demonstrate a minimum 50 pound pull out value.
d. 1-1/4" minimum embedment.

2.3 METAL ACCESSORIES

A. Metal Corner Beads: Prefabricated, No. 1A expanded metal corner bead, small nose corner beads fabricated from zinc alloy, with expanded flanges of large mesh diamond lath to allow full encasement by plaster.
B. Casing Beads: Prefabricated, No. 66 short flange casing bead, square-edged style, with short flange, zinc-coated galvanized steel.

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C. Control Joints - One Piece Type: Prefabricated, No. 15 expansion joint; Folded pair of non-perforated screeds in M-shaped configuration, with expanded flanges, zinc-coated galvanized steel.
D. Weep Screed: Prefabricated, No. 7 foundation sill screed o J-weep; zinc-coated galvanized steel with nailing flange.
E. Inside Corner Control Joint: Prefabricated No. 30, folded pair of non-perforated screeds in W-shaped configuration, with expanded flanges.

2.4 PLASTER

A. Comply with ASTM C926 for Portland cement plaster base and finish coat mixes as applicable bases, materials and other requirements indicated.
1. Portland Cement, ASTM C150, Type II or IV.
2. Plastic Cement: ASTM C1328; no additional lime or plasticizer shall be added.
3. Sand Aggregate for Base Coat: ASTM C897.

B. Portland Cement Plaster Base Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume for cementitious material and in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.
1. Three coat work over metal lath.
2. Scratch Coat: 1 part Portland cement plaster, 2-1/2 to 4 parts sand.
3. Brown Coat: 1 part Portland cement plaster, 3 to 5 parts sand.

C. Cement Exterior Finish Coat: Factory-prepared cement plaster finish coat, manufacturer's standard product requiring addition of water only; natural in color unless otherwise indicated (no integral color, prepare for paint finish).

2.5 OTHER MATERIALS

A. Water for Mixing and Finishing Plaster: Drinkable, free of substances capable of affecting plaster set or of damaging plaster, lath or accessories.

B. Bonding Agent for Portland Cement Plaster: ASTM C932.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 WATER-RESISTIVE BARRIER INSTALLATION

A. General: Install 2 layers water resistive barrier over all sheathing, or continuous insulation where occurs.

1. Install layers independently of each other such that each layer provides a separate continuous plane and any flashing is directed between the layers.
2. Install with minimum 2" horizontal laps and 6" vertical laps.
3. Water resistive barrier is not required on ceilings or soffits.

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B. Integrate water resistive barrier with flashings such that water resistive barrier always laps over flashing.

C. Install water resistive barrier taut with a minimum of wrinkles and with care to eliminate punctures, tears or rips during application and the application of metal lath.

D. Repair holes, tears or rips.

3.3 LATH INSTALLATION

A. Lath: CBC Section 2507.3 and 2510.
   1. Welded Wire Lath: Fasteners shall engage vertical cross wires at the furring crimps, at the intersection of longitudinal wire and cross wire, or at any point along the longitudinal wire.

B. Fastener Spacing:
   1. Space fasteners at 6" on center along supports.
   2. Bend common nails over to engage not less than 3 strands of lath.

C. Soffit Earthquake Nailing: At horizontal soffits, provide additional fasteners along each support and within 3" of the edge of each sheet; 9 gage ring-shank hook staple, 3/4" wide hook, 1-1/2" long.

3.4 INSTALLATION OF PLASTERING ACCESSORIES

A. Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated.
   1. Miter or cope accessories at corners; install with tight joints and in alignment.
   2. Attach accessories securely to plaster bases to hold accessories in place and alignment during plastering.

B. Corner Bead: Install at external corners.

C. Casing Beads: Install at termination of plaster work unless otherwise indicated.

D. Control Joints: Install control joints at locations indicated, or if not indicated, at locations complying with the following criteria and approved by the Architect. Lath shall not be continuous through control joints, but shall be stopped and tied at each side.
   1. Where expansion or control joint occurs in construction directly behind plaster membrane.
   2. Where distance between control joints in plastered surface exceeds 144" in either direction.
   3. Where area within Portland Cement panels exceed 100 sq. ft.
   4. Where Portland Cement plaster panel sizes or dimensions change. Extend joints full width or height of plaster membrane.
   5. At corners of door and window frames.
   6. Directly over changes in substrate materials.

E. Install accessories flush with metal frames and other built-in items unless otherwise indicated.

3.5 PLASTER APPLICATION

A. Comply with all provisions of CBC Section 2512.

B. Portland Cement Plaster Application Standard: Apply Portland Cement plaster materials, compositions, and mixes to comply with ASTM C926. In addition to specified standards, apply plaster as follows:
   1. Scratch coat: Score scratch coat horizontally only to achieve a mechanical bond with the brown coat.
   2. Cold Joints: Cold joints in plaster will not be permitted within a panel, or between screeds, joints, or

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reveals.

C. Tolerances: Do not deviate more than 1/8" in 10'-0" from a true plane in finished plaster surfaces, as measured by a 10'-0" straightedge placed at any location on surface.

D. Plaster flush with metal frames and other built-in metal items or accessories which act as a plaster ground, unless otherwise indicated. Where plaster is not terminated at metal by casing beads, cut base coat free from metal before plaster sets and groove finish coat at the junctures with metal.

E. Walls: Provide 7/8" thick three 3-coat plastering method on walls (3/4" base + 1/8" finish).

F. Ceilings and Soffits: Provide 3/4" thick three 3-coat plastering method on ceilings and soffits.

G. Concealed Plaster: Where plaster application will be concealed by wood paneling, above suspended ceilings and similar locations, finish-coat may be omitted; where concealed behind cabinets and similar furnishings and equipment, apply finish-coat; where used as a base for adhesive application of tile and similar finishes, omit finish-coat and coordinate thickness with overall dimension as shown, and comply with tolerance specified.

H. Number of Coats: Apply Portland Cement plaster, of composition indicated, using 3-coat work over the following plaster bases: Metal lath, scratch coat, brown coat, finish coat.

3.6 CURING

A. Moist cure Portland Cement plaster base and finish coats to comply with ASTM C926, including recommendations for time between coats and during in "Annex A2 Design Considerations".

B. Keep cement basecoat hydrated and allow the cement to chemically cure and harden. Moist cure as needed, morning and evening as required to produce a hard basecoat.

C. Basecoat shall be allowed to cure a minimum of 7 days before applying a finish coat. If feasible allow the basecoat to cure 14 days prior to applying the finish coat.

D. Plastered walls with excessive shrinkage cracks in the basecoat due to a failure to water cure shall be skim coated with a polymer-based cement coat prior to applying a finish coat.

3.7 FINISH COAT

A. Finish Coat Application:
1. Apply finish coat to match mock-ups in color and texture.
2. Acrylic Finish Coat: Apply a primer coat for light colored finishes or provide full prime coverage for all "putz" or "swirl" textures.
3. Provide sufficient crew size to maintain a wet edge; scaffold lines shall be kept to a minimum.
4. Maintain consistency and uniformity in application procedures and techniques.
5. Leave adjacent surfaces clean and free of plaster materials.
6. Leave protection of the plaster in place until finish coat is set.
7. Repair scaffold tie-is to maintain water-resistance of plaster assembly and blend with finish coat.

B. Texture:

1. Cement Finish Coat and Texture: “Fine Sand Float” as illustrated by the Technical Services Information Bureau.

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C. Protect finish coat in compliance with manufacturer's recommendations.

3.8 CLEANING UP

A. Promptly wipe metal accessories, and other surfaces which are not to be plastered, clean after application of each coat.

B. In addition to other protection, protect and clean adjacent surfaces from the accidental application of plaster.
C. In addition to other requirements for cleaning, immediately upon completion of this portion of the Work visually inspect adjacent surfaces and remove all traces of spilled and splashed plaster.

3.9 FIELD QUALITY CONTROL

A. Lath Inspection: No lath or lath attachments shall be covered or finished until it has been inspected and approved by the Project Inspector or special inspector.

END OF SECTION 09 2400

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SECTION 09 2900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Provide gypsum drywall and accessories where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Section includes:
1. Gypsum wallboard and accessories.
2. Joint treatment and accessories.
3. Acoustic (sound dampening) wallboard.
4. Metal furring channels.

C. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 06 1100: Rough carpentry.
3. Section 07 8400: Firestopping of penetrations of fire-rated construction.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop drawing indicating proposed control joint layout.

1.3 REFERENCES

A. All work shall be performed in accordance with the Drawings and Specifications, and with the following standards:
1. GA-214 - Recommended Levels of Gypsum Board Finish; Gypsum Association; 2007.
2. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2007.
3. GA-226 - Application of Gypsum Board to Form Curved Surfaces; Gypsum Association.
4. GA-600 - Fire Resistance Design Manual; Gypsum Association.

1.4 QUALITY ASSURANCE

A. Drywall installer shall coordinate with General Contractor to ensure that substrates at the ceiling line, base, and door/window frames are within a tolerance of straight, not-to-exceed 1/8" in 10', as indicated by a 10' straight edge. General Contractor shall shim as required prior to drywall installer accepting substrates. Failure to maintain the tolerances will require removal and reinstallation at no additional cost to the Owner.

B. Mock-Ups:
1. At a location on the site where approved by the Architect, provide a mock-up gypsum wallboard panel.
a. Make the panel approximately 2'-0" square.
b. Provide one mock-up panel for each gypsum wallboard finish used on the Work.
c. Revise as necessary to secure the Architect's approval.

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2. The mock-up panels, when approved by the Architect, will be used as datum points for comparison with the remainder of the work of this Section for the purpose of acceptance or rejection.

C. Rated Construction: Comply with the requirements of the indicated system design number and/or test number to furnish the required rating for:
1. Fire-rated construction.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 GYPSUM WALLBOARD

A. Fire-Resistant Gypsum Wallboard: Paper-faced gypsum panels, ASTM C1396; sizes to minimize joints in place; edges tapered, ends square cut; Type X, 5/8" thick in all locations unless otherwise noted.

2.3 METAL ACCESSORIES

A. Finishing Accessories: ASTM C1047; galvanized steel or rolled zinc, unless otherwise indicated.

B. Casing Beads:
1. Provide channel shapes with an exposed wing, and with a concealed wing not less than 7/8" wide.
2. Provide bullnose shapes where shown on Drawings, as manufactured by Flannery, Inc., Clinch-On Corner Bead Co.

C. Corner Beads:
1. Provide angle shapes with wings not less than 7/8" wide and perforated for nailing and joint treatment at horizontal edges.
2. Provide bullnose shapes at vertical edges and where indicated on the Drawings.

D. Control Joints:
1. Provide with 1/4" wide center channel with removable tape strip and wings perforated for nailing and joint treatment at horizontal edges as manufactured by Clark Dietrich, 093 Vinc Control Joint (ZNCJ).

E. Edge Beads at Ceiling Perimeter:
1. Provide angle shapes with wings not less than 3/4" wide.
2. Provide concealed wing perforated for nailing, and exposed wing edge folded flat.
3. Exposed wing may be factory finished in white color.

F. Reveals: Extruded aluminum, alloy 6063-T5, with prepunched mounting flanges tapered to receive joint bedding, tape and top coat. Factory chromate conversion coating. As manufactured by Fry Reglet Corp., Gordon Inc., MM Systems Inc.

2.4 FASTENING DEVICES

A. Wood Framing: No. 6 Type W, bugle-head screws, length as required for single or multi-layer application; ASTM C1002.

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B. Metal Framing: No. 6 Type S, bugle-head screws, length as required for single or multi-layer application; ASTM C1002.

2.5 JOINTING SYSTEM

A. Provide a jointing system, including reinforcing tape and compound, designed as a system to be used together and as recommended for this use by the manufacturer of the gypsum wallboard approved for use on the Work. ASTM C 475.

B. Jointing compound may be used for finishing if so recommended by its manufacturer.

C. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

2.6 TEXTURE

A. Primer: Manufacturer's recommended acrylic latex coating. Tuff Hide by USG.

B. Texture Material: Manufacturer's recommended product for the finish texture specified.

2.7 SHEET METAL FURRING CHANNELS

A. Furring Channels:
1. Hat-shaped with 2 equal legs and flanges, size as indicated on the drawings, 24 gage (0.0179 in.) minimum steel thickness.
2. Z-shaped, slotted or unslotted web, face flange of 1-1/4", wall attachment flange of 7/8", 24 gage (0.0179 in.) minimum steel thickness, depth required to fit insulation thickness indicated.

B. Resilient Channels: Single-leg type with screw flange, punched leg, and top flange, 1/2" high, 24 gage (0.0179 in.) minimum steel thickness.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. General:
1. Install gypsum wallboard in accordance with the Drawings and with separate boards in moderate contact but not forced in place.
2. At internal and external corners, conceal cut edges of the boards by overlapping covered edges of abutting boards.
3. Stagger boards so that corners of any four boards will not meet at a common point except in vertical corners.

B. Ceilings:

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1. Install gypsum wallboard to ceilings with the long dimension of the wallboard at right angles to the supporting members.
2. Maximum Fastener Spacing: 12" on center in field, 6” on center at the board perimeter edges.

C. Walls:
1. Install gypsum wallboard in vertical direction, plumb and square and in full height single piece sheets wherever possible.
   a. Gypsum wallboard may be installed in horizontal direction behind vinyl covered tackboard panels.
2. Make end joints, where required, over framing, furring members, or solid backing.
3. Butt factory edges together. Do not butt a factory edge with a cut edge.
4. Maximum Fastener Spacing: 16" on center in field, 8” on center at the board perimeter edges.

3.3. SHEET METAL FURRING

A. Hat Channels (Resilient Channels similar):
1. Attach sheet metal furring channels by screws, nails, or bolts as best suited for the type of stud.
2. Install channels horizontally starting 2" above the finished floor and vertically spaced as recommended by the manufacturer for the total thickness of the surfacing, but not exceeding 16" on center. Splice by nesting channels not less than 8" and securely wire tie.
3. Install resilient channels "free" edge up.

B. Z-Furring:
1. Erect insulation vertically and hold in place with Z-furring members spaced at 24" on center.
2. Except at exterior corners, attached narrow flange of furring members to wall with fasteners spaced at 24" on center.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel.
4. At interior corners, space second member no more than 12" from corner and cut insulation to fit.

3.4 JOINT TREATMENT

A. General:
1. Inspect areas to be joint treated, verifying that the gypsum wallboard fits snugly against supporting framework.
2. Unless specified otherwise, treat all joints on gypsum face panels. Refer to level of finish required below.
3. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.

B. Embedding Compounds:
1. Apply to gypsum wallboard joints and fastener heads in a thin uniform layer.
2. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape.
3. After this treatment has dried, apply the number of coats of embedding compound to joints and fastener heads for the level of finish specified for the surface, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged.
4. Sand between coats as required.
5. When thoroughly dry, sandpaper to eliminate ridges and high points.

C. Finishing Compounds:

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1. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener heads.
2. Feather the finishing compound to not less than 12" wide.
3. When thoroughly dry, sandpaper to obtain a uniformly smooth surface, taking care to not scuff the paper surface of the wallboard or raise the nap of the gypsum board paper facing.

E. Backing Board: 5/8" Type “X” gypsum board, unless otherwise noted.
1. Treat all joints behind fiberglass reinforced panels.
2. Joints behind vinyl covered tackable panels are not required to be treated.

F. Gypsum Board at Fire Rated Construction: Comply with UL fire listed assemblies, or other fire rated assemblies.

3.5 LEVELS OF FINISH

A. The following descriptions of levels of finish are in accordance with GA-214. Finish gypsum board and tackboard in accordance with the Gypsum Construction Handbook as published for the construction industry by United States Gypsum Company.

B. **Level 1:** Embed tape in joint compound at all joints and interior angles. Surface free of excess joint compound. Tool marks and ridges are acceptable.
1. Provide Level 1 finish on surfaces hidden above a ceiling or soffit at sound walls, fire-rated walls, and exterior walls.
2. Provide Level 1 finish on surfaces hidden behind tack board.

C. **Level 3:** Embed tape in joint compound, and provide one additional coat of compound, over all joints and interior angles. Provide two separate coats of compound over accessories and fasteners. All joint compound shall be smooth and free of tool marks and ridges.
1. Provide Level 3 finish on all exposed finished or unfinished gypsum board surfaces not specified to receive Level 4 or 5 finish.
2. Provide Level 3 finish behind fiberglass reinforced panels installed over gypsum backing board.

D. **Level 4:** Embed tape in joint compound, and provide two additional coats of compound, over all joints and interior angles. Provide three separate coats of compound over accessories and fasteners. All joint compound shall be smooth and free of tool marks and ridges. All joint compound shall be smooth and free of tool marks and ridges.
1. Provide Level 4 finish where vinyl wall covering or dry-erase wall covering is installed on gypsum board surfaces.

E. **Level 5:** Embed tape in joint compound, and provide two additional coats of compound, over all joints and interior angles. Provide three separate coats of compound over accessories and fasteners. All joint compound shall be smooth and free of tool marks and ridges. A thin skim coat of joint compound, or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
1. Provide Level 5 finish on all tackboard surfaces to receive field-applied vinyl wallcovering.

3.6 CORNER TREATMENT AND METAL ACCESSORIES

A. Internal Corners: Treat as specified for joints, except fold the reinforcing tape lengthwise through the middle and fit neatly into the corner.

B. External Corners:

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1. Install the specified corner bead, fitting neatly over the corner and securing with the same type fasteners used for installing the wallboard.
2. Space the fasteners approximately 6" on centers, and drive through the wallboard into the framing or furring member.
3. After the corner bead has been secured into position, treat the corner with joint compound and reinforcing tape as specified for level of finish specified for the surface, feathering the joint compound out from 8" to 10" on each side of the corner.

C. Control Joints:
1. Walls and ceilings: Install at 30’-0” o.c. maximum spacing in either direction when planes exceed 30’-0” in length.
2. Unless locations are specifically indicated on the Drawings, Contractor shall submit a control joint plan for the architect’s review.

3.7 OTHER METAL TRIM

A. General: The Drawings do not purport to show all locations and requirements for metal trim. Carefully study the Drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this Work.

3.8 TEXTURE

A. Exposed Wall Surfaces for Paint: Provide fine orange peel finish approved by Architect on exposed gypsum board surfaces.

B. Exposed Ceiling and Soffit Surfaces for Paint: Provide fine orange peel finish approved by Architect on exposed gypsum board surfaces.

C. Provide the manufacturer’s recommended primer/sealer to surfaces to receive texture prior to texturing.

3.9 MARKING AND IDENTIFICATION (CBC 703.7)

A. At all accessible concealed floors, floor-ceilings and/or attic spaces with fire walls, fire barriers, fire partitions, smoke barriers and/or smoke partitions or any other wall required to have protected openings or penetrations provide signs or stencil as follows:
1. Located within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.
2. Letting shall be not less than 3 inches in height with a minimum 3/8 inch stroke in contrasting color stating, “FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS”.

3.10 CLEANING UP

A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.

B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, and surplus material of this Section.

END OF SECTION 09 2900

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SECTION 09 3000 - TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide tile where called for on the Drawings, as specified herein, and as needed for a complete and proper installation. Section includes:
   1. Tile for floor applications
   2. Tile for wall applications
   3. Tile wall base
   4. Backer board as tile substrate
   5. Trim, accessories and setting materials

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   2. Section 07 9210: Sealing and caulking of expansion joints and other joints.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturers recommended installation procedures.
   3. Samples:
      a. Tile: Submit sufficient samples of each size, color, and texture to demonstrate the maximum range of sizes, colors, textures, and flatness. Tiles delivered to the job or installed in the Work, and which do not fall within the accepted range, shall be removed from the site and be replaced promptly with acceptable materials.
      b. Trim shapes and base: Review any unusual installation conditions with the Architect for approval prior to commencing the work.
   4. **Verify availability of all parts, in all colors required, at time of submittal.**

B. Contract Closeout Submittals: Submit in accordance with Section 01 7700.
   1. Manufacturer's recommended cleaning procedures.

1.3 QUALITY ASSURANCE

A. Applicable Standards: The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this Specification to the extent they are specified herein. Unless otherwise specified, use the latest edition.
   1. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile - Version; 2014.
   2. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2025.
   3. Tile Council of America (TCA): Comply with the Handbook for Ceramic Tile Installation.

B. Colors: Provide finish selections indicated in the Finish Schedule.
   1. Acceptable Manufacturers: The products and manufacturers specified in the Finish Schedule are for purposes of establishing color and quality. Refer to each Specification Section for additional manufacturers and Section 01 2500 for substitution requirements.

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2. Manufacturer's Standard Colors and Finishes: Where the Finish Schedule specifies a manufacturer's standard color or finish, the Architect makes no guarantee that matching colors or finishes are available as other manufacturer's "standard colors" from the listing of acceptable manufacturers. The Contractor shall be responsible for providing colors matching those indicated on the Drawings.
3. Custom Colors: Where the Finish Schedule indicates a specific manufacturer's colors, other acceptable manufacturers shall provide matching custom colors where a standard color is not acceptable.

C. Blending:
1. Require the tile manufacturer to blend tiles at the factory.
2. Provide additional blending at the job site as needed to secure the Architect's approval.
3. All materials of each specific type and color **shall be from the same dye-lot or run.**
4. Provide additional lighting if necessary prior to starting tile installations.

D. Provide only tile cartons which have been grade-sealed by the manufacturer in accordance with ANSI A137.1, and with grade-seals unbroken.

E. On manufactured grouts, provide labels certifying compliance with the referenced standards.

1.4 SITE CONDITIONS

A. Install mortar, and set and grout the tile, only when temperature is at least 50° F and rising in the space.

B. Protection:
1. Protect adjacent surfaces during progress of the work of this Section.
2. Close rooms and spaces to traffic of all types until mortar and grout have set for 72 hours.

C. Illuminate the work area during installation, providing the same level and angle of illumination as will be available for final inspection.

1.5 EXTRA MATERIALS

A. Materials: Provide for the Owner's use, an extra stock of approximately 3% of each type, color, pattern, and size of material installed. Package each type of material separately, distinctly marked, and protected against deterioration and damage.

B. Deliver materials to the Inspector of Record along with an inventory list of items provided. Obtain and forward to the Architect, a signed receipt from the Inspector accepting delivery.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01620.

B. Manufacturers: As indicated on the Finish Schedule.

2.2 CERAMIC TILE

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A. Except as may be otherwise specified or approved by the Architect, provide floor tiles **with coefficient of friction of 0.42** or higher in accordance with pertinent provisions of ASTM C1028.

B. Ceramic Mosaic Floor Tile, Unglazed:
   1. Type: Ceramic Mosaic
   2. Size: 2"x 2"
   3. Catalog number and/or color: See Finish Schedule
   4. **Note:** Provide ceramic mosaic with 7.5% abrasive content at shower floors.

C. Interior Wall Tile, Glazed:
   1. Type: Glazed Ceramic
   2. Size: 4-1/4" x 4-1/4"
   3. Catalog number and/or color: See Finish Schedule

D. Provide standard trim shapes as required.
   1. Provide all bases, caps, stops, returns, trimmers, and other shapes indicated or required to produce a completely finished installation.
   2. Unless otherwise noted on the Drawings, provide color and finish matching the adjacent tile.
   3. **All interior and exterior wall corners shall be standard bullnose units** unless otherwise noted.
   4. Verify with Architect any conflicting conditions prior to installation.

2.3 INSTALLATION MATERIAL

A. All materials, including mortar bed, metal lath, membranes, bond coats, etc. shall be in strict compliance with the CTA Handbook for Ceramic Tile Installation.

B. Portland Cement Mortar Bed: Provide materials in accordance with ANSI A108.1 and the TCA setting method specified below.
   1. Membrane: 15 pound roofing felt or 4 mil polyethylene film (required in wet areas only)
   2. Portland Cement: ASTM C150, Part 1.
   3. Lime: ASTM C206, Type S or ASTM C207, Type S.
   4. Sand: ASTM C144.
   5. Water: Potable.

C. Bond Coat:
   1. Latex-Portland Cement Mortar: ANSI A118.4. Ardex X77 Microtec fiber reinforced tile and stone mortar by Ardex Americas, Super Flex by TEC, ReFlex by Bostik, 254/255 by Laticrete, or Kerabond/Keralastic by Mapei, with manufacturers recommended acrylic latex additive.
   2. Epoxy: 100% solids; chemical, stain, and shock resistant; ANSI A118.3. Ardex WA Epoxy adhesive and grout by Ardex Americas, AccuColor EFX Epoxy by TEC, ExPoxy Ezclean by Bostik, Latapoxy 300 by Laticrete International, or Kerapoxy by Mapei Corp.

D. Grout:
   1. Epoxy Grout: 100% solids; chemical, stain, and shock resistant; ANSI 118.3. Ardex WA Epoxy grout and adhesive by Ardex Americas, AccuColor EFX Epoxy by TEC, EzPoxy Exclean by Bostik, Latipoxy 300 by Laticrete, or Kerapoxy by Mapei.

2.4 METAL TRIM

A. Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive; by Schluter-Systems or Profilitec.
   1. Applications:

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a. Open edges of wall tile.
b. Open edges of floor tile.
c. Wall corners, inside and outside.
d. Transitions between floor finishes of different height.
e. Thresholds at door openings.
f. Borders and other trim as indicated on the Drawings.

2.5 CAULKING

A. Ceramic Tile Caulk:
1. Sanded: Polyblend Ceramic Tile Caulk by Custom Building Products, Ardex SX 100% Silicone sealant for tile and stone by Ardex Americas or approved equal.
2. Non-Sanded: Polyblend Ceramic Tile Caulk by Custom Building Products, Ardex SX 100% Silicone sealant for tile and stone by Ardex Americas or approved equal.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. **Do not proceed until unsatisfactory conditions are corrected.**

B. Coordinate with other trades as needed to assure that proper substrata are provided to receive the work of this Section.

C. Where a Portland cement mortar setting bed will be installed, do not commence installation of the setting bed until substrata are within the following tolerances:
1. Horizontal surfaces: Level within 1/4" in ten ft in all directions;
2. Vertical surfaces: Plumb within 1/4" in eight ft in all directions.

D. Where tile units will be thin-set directly to the substrata, do not commence installation of the tile units until substrata are within the following tolerances:
1. Horizontal surfaces: Level within 1/8" in 10'-0" in all directions;
2. Vertical surfaces: Plumb within 1/8" in 8'-0" in all directions.

E. Condition of surfaces to receive tile:
1. Verify that surfaces to receive mortar setting bed and tile are firm, dry, clean, and free from oily or waxy films and curing compounds.
2. Verify that grounds, anchors, plugs, recess frames, bucks, electrical work, mechanical work, and similar items in or behind the tile have been installed before proceeding with installation of mortar bed or tile.

F. Tile at Dissimilar Materials:
1. Where tile will be set over dissimilar substrates, i.e. wood and masonry in the same plane, provide and install Dal-Seal CIS - Crack isolation sheet membrane, or approved equal.
2. Provide for 1/4" full depth gap between tile and metal door frames. Fill with mildew resistant silicone sealant.
3. Provide for movement of dissimilar substrate materials by using mildew resistant silicone sealant at nearest grout joint.

3.2 SETTING METHOD

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A. Use setting method of the types indicated and required in accordance with TCA Handbook of Ceramic Tile Installation as specified below.

B. Interior Walls:
   1. **Wood or Metal Stud with Mortar Bed:** W231 with latex Portland cement bond coat on a cured mortar bed; membrane, plain lath, mortar bed and scratch coat - ANSI A108.1A, tile - ANSI A108.1B, and grout - ANSI A108.3. Provide expansion joints and cold joints at all interior and exterior corners in accordance with TCA Movement Joint Design Essentials EJ171.

C. Interior Base Only, No Wall Tile Above:
   1. **Studs and Gypsum Board:** W221 with latex Portland cement mortar bond coat on a cured mortar bed; membrane, self-furring metal lath, mortar bed with scratch coat - ANSI A108.1B, tile - ANSI A108.1B, and grout - ANSI A108.10.

3.3 TILE INSTALLATION

A. General:
   1. **Prior to installation, verify layout of patterns and transitions with the architect for approval.**
   2. Comply with pertinent provisions of the referenced standards and the product manufacturer's installation recommendations, except as otherwise directed by the Architect or specified herein.
   3. Maintain minimum temperature limits and installation practices recommended by materials manufacturers.
   4. Do not install tile floors over membrane until the membrane has been tested and accepted.
   5. Mix and use proprietary materials in strict accordance with the manufacturers' printed instructions.
   6. Prepare the surfaces, set, fit, grout, and clean the work of this Section in strict accordance with the referenced standards and the manufacturers' recommendations.
   7. Provide adequate lighting to assure workman visibility for uniform tile setting.

B. Install in accordance with pertinent provisions of the standards listed in 1.3 above, pressing and beating tile into place to obtain 100% coverage by mortar on back of each tile. Back-butter tiles if necessary to achieve 100% coverage.

C. Limits of Tile:
   1. Extend tile into recesses and under equipment and fixtures to form complete covering without interruptions.
   2. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.

D. Joining Pattern:
   1. Lay tile in grid pattern unless otherwise indicated on the Drawings or directed by the Architect.
   2. **Align joints** when adjoining tiles on floor, base, trim, and walls are the same size.
   3. Layout tile work, and center the tile fields both directions in each space or on each wall area.
   4. Adjust to minimize tile cutting.
   5. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size.
   6. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

E. Allowable Variations in Finished Work: Do not exceed the following deviations from level and plumb, and from elevations, locations, slopes, and alignments shown:
   1. Horizontal surfaces: 1/8" in ten ft in all directions;
   2. Vertical surfaces: 1/8" in eight ft in all directions;
   3. Adjacent tiles flush.

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3.4 THRESHOLDS

A. EDGE STRIPS: Install edge strips at openings where threshold has not been called for, but where tile floor abuts other flooring material at same level.

B. Where thresholds are detailed to be installed over tile, install with a full bedding of bonding mortar.

3.5 GROUTING

A. General:
1. Do not begin grouting floor tiles until they are firmly set and, in no case, in less than 48 hours after they have been installed.
2. Remove spacers, ropes, glue, and similar foreign matter prior to grouting.
3. When using proprietary grout, adhere strictly to the manufacturer's directions unless otherwise specified or approved by the Architect.

B. Installation:
1. Mix grout by hand or with a slow-speed drill motor not exceeding 300 rpm, achieving a stiff non-slumping, uniform consistency, and using the minimum amount of liquid to achieve a workable mix.
2. Force the maximum amount of the approved grout into joints in accordance with pertinent recommendations contained in ANSI standards specified.
3. Fill the joints of cushion-edge tile to depth of the cushion; fill joints of square-edge tile flush with the surface.
4. Fill all gaps and skips.
   a. Do not permit mortar or mounting mesh to show through grouted joints.
   b. Provide hard finished grout which is uniform in color, smooth, and without voids, pin holes, or low spots.
5. Leave tile clean.

3.6 CAULKING

A. Locations:
1. Caulk all tiled inside and outside corners with sanded caulking, color to match grout, in lieu of grout.
2. Caulk transition from wall tile to ceiling and wall with sanded caulking, color to match grout, in lieu of grout.
3. Caulk intersection of wall and ceiling tile to door and window frames with sanded caulking, color to match grout, in lieu of grout.

3.7 CURING

A. Damp cure all tile installations, including portland cement grouts, for 72 hours minimum.
1. Cover with 40 pound kraft paper.
2. Do not use polyethylene sheets directly over tile on horizontal surfaces.

3.8 CLEANING AND POLISHING

A. After completion of setting and grouting, thoroughly clean and polish the tile.
1. Do not use acid or acid cleaners to clean tile.
2. When epoxy resin grout is thoroughly cured, steam clean paraffin coating per manufacturer’s recommendations.
3. When the tile is thoroughly clean and dry, polish glazed tile with clean dry cloths.

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3.9 PROTECTION AND REPLACEMENT

A. Protect finished tile work while other work in the area is in progress. Do not permit traffic on tile floors for 7 days after laying tile. Protect tile floors from traffic with heavy, non-staining paper held in place with non-staining masking tape.

B. Replace cracked, chipped, broken, and otherwise defective tiles.

C. Remove work not complying with requirements of the Contract Documents or the referenced standards, and promptly replace with work which does comply.

END OF SECTION 09 3000

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SECTION 09 7730 - FIBERGLASS REINFORCED PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide fiberglass wall panels where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 09 9100: Priming of gypsum board and CMU surfaces.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's specifications and other data needed to prove compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.

B. Contract Closeout Submittals: Manufacturer's recommended cleaning procedures.

PART 2 - PRODUCTS

2.1 WALL PANELS

A. Textured Gloss Panels shall be finished panels 4' x 8' or 10' x 3/32" as required for installation with no horizontal seams, color as indicated on finish schedule. See Drawings for location.
1. Panels shall be solid fiberglass reinforced polyester construction. Class A; Flame spread of 25 or less, smoke-developed less than 450.
2. Adhesive shall be per manufacturer's standards, meeting requirements of ASTM C557-65T, non-toxic, non-flammable and per State Fire Marshal Standards.
3. Color: As noted on the Finish Schedule

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
1. Glasbord by Crane Composites, Inc.
2. FiberLite FRP - Wall Panels by Nudo.
4. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 OTHER MATERIALS

A. Provide manufacturer's standard prefinished vinyl clad moldings and trim in harmonizing colors at all joints, corners, and edges.

B. Adhesive: Titebond Fast Grab FRP Adhesive or approved equivalent.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Securely install panels by adhering to substrate as recommended by the manufacturer. Set panels straight, plumb, level, and true to the lines and levels shown on the Drawings.

B. Install maximum length materials wherever possible.

C. Finish butt joints, wall juncture, wall/ceiling and wall/curb joints with the manufacturer's standard trim pieces and the specified sealant, tooling to a smooth finish.

D. When installed as a wainscot, position panels in a horizontal railroad style to minimize seams.

E. When indicated to be installed backside (smooth side) out, select panels free of mars and scratches.

3.2 CLEANING

A. Upon completion of each buildings work, remove all debris from building and site. Remove all excess mastic and caulking materials from finished surfaces and adjacent surfaces.

END OF SECTION 09 7730

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SECTION 09 9100 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. General: Paint and finish all exposed surfaces using the combination of materials listed on Painting Schedule in Part 3 of this Section, as specified herein, and as needed for a complete and proper installation.
   1. Surface preparation, priming, and painting specified in this Section are in addition to shop priming and surface treatment specified in other sections.
   2. Paint exposed surfaces whether or not colors are designated in schedules. Paint exposed surfaces to match adjacent materials or areas, in the color selected by the Architect.

B. Work Included: The following list is not totally inclusive and does not exclude work not stated herein but required to be painted in the specifications, Finish Schedule, and drawings. Unless otherwise specified, work to be painted under this Section includes, but is not limited to:
   1. Work specifically noted as requiring a paint finish in the drawings and specifications, and on the Finish Schedule.
   2. Priming of gypsum board and CMU substrates for fiberglass reinforced panels.
   3. Custom iron fences and gates.
   4. Concrete, sealer where indicated.
   5. Concrete masonry, where indicated.
   6. Exposed structural steel.
   7. Exposed metal decking.
   8. Interior and exterior metal fabrications, both galvanized and shop primed.
   9. Metal stairs.
   10. Wood trim.
   11. Wood casework.
   12. Interior and exterior ferrous metal.
   13. Interior and exterior galvanized metal.
   14. Galvanized flashings and sheet metal.
   15. Roof vents, fire vents, and roof accessories.
   16. Metal doors and frames.
   17. Wood doors.
   18. Cement plaster.
   19. Gypsum board.
   20. Acoustical ceilings/surfaces.
   21. FSK faced insulation exposed to view within rooms.
   22. Indoor gymnasium equipment.
   23. Outdoor recreation equipment.
   24. Exposed surfaces of glazing stops, including those visible after glazing is installed.
   25. Tubular daylighting device flashings, caps and curbs.
   26. Exposed mechanical items including:
      a. Piping, pipe hangers, and supports.
      b. Tanks.
      c. Ductwork and insulation.
      d. Mechanical equipment, and supports.
      e. Accessory items.
   27. Exposed electrical conduit, raceways, fittings, panels, and switchgear.

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C. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
   2. Priming or priming and finishing of certain surfaces may be specified to be factory-performed or installer-performed under pertinent other Sections.
   3. Section 07 9210: Joint sealants.
   4. Section 32 1720: Painting for pavement markings.

E. Definitions: "Paint," as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturer's recommended installation procedures.
   3. Samples: Following the selection of colors and glosses by the Architect, submit Samples for the Architect's review.
      a. Provide four Samples of each color and each gloss for each material on which the finish is specified to be applied, approximately 8" x 10" in size.
      b. Provide wood stain samples on specified wood for color selection or approval.
      c. If so directed by Architect, submit Samples during progress of the Work in the form of actual application of the approved materials on actual surfaces to be painted.
      d. Revise and resubmit each Sample as requested until the required gloss, color, and texture are achieved. Such Samples, when approved, will become standards of color and finish for accepting or rejecting the work of this Section.
      e. Do not commence finish painting until approved Samples are on file at the job site.

B. Contract Closeout Submittals: Manufacturer's recommended cleaning procedures.

1.3 QUALITY ASSURANCE

A. Comply with applicable codes and regulations of governmental agencies having jurisdiction, including those having jurisdiction over airborne emissions and industrial waste disposal. Where those requirements conflict with this specification, comply with the more stringent provisions.

B. Paint Coordination:
   1. Provide finish coats which are compatible with the prime coats actually used and specified.
   2. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata.
   3. Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used.
   4. Provide barrier coats over noncompatible primers, or remove the primer and reprime as required.
   5. Notify the Architect in writing of anticipated problems in using the specified coating systems over prime-coatings supplied under other Sections.

1.4 DELIVERY, STORAGE, AND HANDLING

A. General:

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1. Do not store flammable materials inside buildings.
2. Mix paint in a location and manner that will protect the environment and facilities.
3. Provide ventilation needed to comply with OSHA requirements.

1.5 SITE CONDITIONS

A. Do not apply exterior materials during fog, rain, or mist, or when inclement weather is expected within the dry time specified by the manufacturer. No exterior or interior painting shall be performed until the surfaces are thoroughly dry and cured. Do not apply paint when temperature is below 50 deg F. Avoid painting surfaces when exposed to direct sunlight.

1.6 EXTRA MATERIALS

A. Upon completion of the work of this Section, deliver to the Owner an extra stock equaling 5% of each color, type, and gloss of paint used in the Work, tightly sealing each container, and clearly labeling with contents and location where used.

B. Deliver materials to the Inspector of Record along with an inventory list of items provided. Obtain and forward to the Architect, a signed receipt from the Inspector accepting delivery.

PART 2 - PRODUCTS

2.1 PAINT MATERIALS

A. Products specified are for establishing the type, design, and quality required and are based on products of **Dunn-Edwards.** Other product systems approved for use are by Pittsburg Paints**,** Sherwin-Williams, and Vista Paint. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.
   1. Where products are proposed other than Dunn-Edwards, submit a new painting schedule compiled in the same format used for the Painting Schedule included in this Section.
   2. Approved specifications of materials for the other referenced manufacturers may be obtained from the Architect.

B. Undercoats and Thinners:
   1. Provide undercoat paint produced by the same manufacturer as the finish coat, unless specified otherwise.
   2. Use only the thinners recommended by the paint manufacturer, and use only to the recommended limits.
   3. Provide undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

C. Paint Systems: The specified standard is 100% acrylic premium top-of-the line paint, except where surfaces are specified to receive industrial coatings.

2.2 COLOR SCHEDULES

A. Refer to the Finish Schedule on the Drawings.

2.3 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and in accordance with all current Environmental Protection Agency standards and regulations.

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2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 MATERIALS PREPARATION

A. Mix, prepare, and store painting and finishing materials in accordance with the manufacturer's written recommendations.

3.3 SURFACE PREPARATION

A. General:
1. Perform preparation and cleaning procedures in strict accordance with the paint manufacturers' recommendations.
2. Remove removable items which are in place and are not scheduled to receive paint finish.
3. Following completion of painting in each space or area, reinstall the removed items by using workmen who are skilled in the necessary trades.
4. Clean each surface to be painted prior to applying paint or surface treatment.
5. Remove dirt and other foreign substances. Remove oil and grease with clean cloths and cleaning solvent of low toxicity and flash point in excess of 200 degrees F, prior to start of mechanical cleaning.
6. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

B. Metal:
1. Thoroughly clean surfaces until free from dirt, oil, and grease per SSPC-SP 1. Remove all mill scale, rust formation, etc.
2. On galvanized surfaces, use solvent for the initial cleaning, and then treat the surface thoroughly with etching solution. Remove etching solution completely before proceeding. **Prime etched metals the same day cleaning was performed.** If any oxidation (white rust) has formed, sand and remove all forms of contamination. If the galvanized has been passivated or stabilized, the surface must be abraded, i.e. Brush-Off Blast Clean per SSPC-SP7 or chemically treated.
3. Allow to dry thoroughly before application of paint.
4. Primers specified for structural steel and metal fabrications are standalone systems. Apply full paint system as specified in this Section even if metal comes preprimed or shop primed.

C. Prefinished Metal:
1. Solvent clean per SSPC-SP 1. Abrade substrate to remove gloss and obtain minimum surface profile of 1.0 mil. Solvent wipe to remove dust.

D. Concrete:
1. Thoroughly clean surfaces.

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2. Prior to painting, the material shall be dry to the extent that a proper, long lasting, and non-blistering bond will be assured. Should the dryness of the substrate be in question, test the substrate in the presence of the paint manufacturer's representative. Do not paint substrate in question until dryness condition improves to meet the paint manufacturer's requirements.
3. Where floors are to be sealed, provide surface preparation per SSPC-SP13/NACE 6.

E. Masonry and Cement Plaster:
1. Allow to dry at least 30 days prior to cleaning in preparation for painting.
2. Remove glaze, efflorescence, laitance, surface deposits, and other foreign matter.

F. Gypsum Board: Remove all sanding dust.

G. Wood, Painted Finish:
1. Remove surface deposits of sap and pitch by scraping and cleaning with mineral spirits.
2. Seal all knots and pitch pockets with the paint manufacturer's recommended materials prior to prime coat.
3. Sand smooth all wood surfaces exposed to view, using the proper sandpaper and remove dust. Where so required, use varying degrees of coarseness in sandpaper to produce a uniformly smooth and unmarred wood surface.
4. After prime coat is dry, fill cracks, holes, and scratches with suitable wood filler or spackling compound. When dry, sand flush with surface.
5. Do not proceed with painting of wood surfaces until the moisture content of the wood is 12% or less as measured by a moisture meter.

H. Wood, Stained Finish:
1. Apply paste wood filler to open grained wood prior to sanding.
2. Sand smooth all wood surfaces exposed to view, using the proper sandpaper and remove dust. Where so required, use varying degrees of coarseness in sandpaper to produce a uniformly smooth and unmarred wood surface.
3. Apply wash coat of sealer, sand and remove dust.
4. Lightly sand and clean between finish coats as recommended by the paint manufacturer.
5. Seal tops, bottoms, and edges of cutouts on wood doors.

3.4 PAINT APPLICATION

A. General:
1. Touchup or reprime shop-applied prime coats which have been damaged, and touchup bare areas prior to start of finish coats application.
2. Slightly vary the color of succeeding coats.
   a. Do not apply additional coats until the completed coat has been inspected and approved.
   b. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.
3. Sand and dust between coats to remove defects visible to the unaided eye from a distance of five feet.
4. On removable panels and hinged panels, paint the back sides to match the exposed sides.
5. Finish to be smooth.

B. Priming: Primers specified for structural steel and metal fabrications are standalone systems. Apply full paint system as specified in this Section even if metal comes preprimed or shop primed.

C. Drying: Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.

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D. Brush Applications:
   1. Brush out and work the brush coats onto the surface in an even film.
   2. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.
   3. Ferrous and non-ferrous metals may be sprayed on first coat(s) but final coat shall be applied with brush or roller.

E. Spray Application:
   1. Except as specifically otherwise approved by the Architect, confine spray application to wall surfaces, large expanse areas and similar surfaces where hand brush work would be inferior.
   2. Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.
   3. Do not double back with spray equipment to build up film thickness of two coats in one pass.
   4. Ferrous and non-ferrous metals may be sprayed on first coat(s) but final coat shall be applied with brush or roller.

F. Roller Application:
   1. Apply paint with short nap roller on all metal doors. Color as specified (same interior and exterior).
   2. Remove all surface applied door trim prior to painting.
   3. Roller marks, lap marks, runs, sags, fuzz, lint or other surface imperfections will not be acceptable.
   4. Ferrous and non-ferrous metals may be sprayed on first coat(s) but final coat shall be applied with brush or roller.

G. For completed work, match the approved Samples as to texture, color, and coverage. Remove, refinish, or repaint work not in compliance with the specified requirements.

H. Exposed Mechanical and Electrical Items:
   1. Finish electric panels, access doors, conduits, pipes, ducts, grilles, registers, vents, exposed plumbing vents and flues, and items of similar nature to match the adjacent wall and ceiling surfaces, or as directed.
   2. Paint visible duct surfaces behind vents, registers, and grilles flat black.
   3. Exposed vents and flues: Apply two coats of heat-resistant paint approved by the Architect.
   4. Factory finished items that match color scheme may be approved for leaving unpainted by Architect.

I. Exposed Pipe and Duct Insulation:
   1. Apply one coat of latex paint on insulation which has been sized or primed under other Sections; apply two coats on such surfaces when unprepared.
   2. Match color of adjacent surfaces unless otherwise noted.
   3. Remove band before painting, and replace after painting.

J. Hardware: Paint prime coated hardware to match adjacent surfaces, unless otherwise noted. Paint metal portions of head seals, jamb seals, and astragal seals to match the color of the door frame unless otherwise directed by the Architect.

K. Wet Areas:
   1. In toilet rooms and contiguous areas, add an approved fungicide to paints.
   2. For oil base paints, use 1% phenolmercuric or 4% tetrachlorophenol.
   3. For water emulsion and glue size surfaces, use 4% sodium tetrachlorophenate.

L Miscellaneous:
   1. Use "stipple" finish where enamel is specified.
   2. Ferrous Metal: When metal comes shop primed or preprimed, always reprime with a solvent primer or Direct-to-Metal (DTM) primer. Sand or remove all visible rust.
   3. Wood Trim: Backprime exterior wood trim prior to installation with the paint manufacturer's

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recommended exterior wood primer.

4. Touch-up shall be performed using the same application method as the original final coat application.

3.5 PROTECTION

A. Protect floors, furnishings, equipment, finish hardware, name or information plates, dials, gauges, tile, or other such surfaces not requiring painting from spotting, spillage, or damage of any kind. Clean, repair, or replace any damaged surfaces as directed by the Architect.

B. Remove, loosen, or mask hardware, fixture canopies, outlet covers, switch plates, and other similar items as required for painting work and then replace.

C. Using workmen skilled in these trades, move equipment adjacent to walls to permit wall surfaces to be painted, and following completion of painting, replace and reconnect.

3.6 CLEANING

A. Upon completion of all paint work, clean paint from all glass surfaces leaving a sharp clean line.

B. Remove paint spots, oil, or stains.

3.7 PAINTING SCHEDULE

A. General: Provide paint systems as specified below.
1. Products specified in this schedule are based upon products of **DUNN-EDWARDS** and are specified for establishing the type and quality of products required. Refer to Paragraph 2.1.A of this Section.
2. See Finish Schedule for colors and gloss.
3. Abbreviations: (F) = Flat, (LL) = Low Luster, (SGE) = Semi-Gloss Enamel; (ESE) = Eggshell Enamel; (GE) = Gloss Enamel; (SL) = Stain/Lacquer

B. Exterior Metal, Ferrous (SGE):
1. First coat: BLOC-RUST Premium, Rust-Preventative Metal Primer (BRPR00 Series)
2. Second coat: ARISTOSHIELD® Interior/Exterior Semi-Gloss Paint (ASHL50)
3. Third coat: ARISTOSHIELD® Interior/Exterior Semi-Gloss Paint (ASHL50)

4. **Note:** No clear, tint, or deep base. Only blending bases or factory ground colors will be allowed.

C. Exterior Metal, Galvanized and Aluminum (SGE):
1. Pretreatment: Krud Kutter Metal Clean and Etch
2. First coat: ULTRASHIELD® Galvanized Metal Primer (ULGM00)
3. Second coat: ARISTOSHIELD® Interior/Exterior Semi-Gloss Paint (ASHL50)
4. Third coat: ARISTOSHIELD® Interior/Exterior Semi-Gloss Paint (ASHL50)

5. **Note:** No clear, tint, or deep base. Only blending bases or factory ground colors will be allowed.

D. Exterior Metal, Prefinished Aluminum (SGE):
1. First coat: Carboline Rustbond
2. Second coat: Carboline Carbothane 133 VOC
3. Third coat: Carboline Carbothane 133 VOC

E. Exterior Metal, Prefinished Ferrous (SGE):
1. First coat: Carboline Rustbond

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2. Second coat: Carboline Carbothane 133 VOC
3. Third coat: Carboline Carbothane 133 VOC

F. Exterior Cement Plaster and Concrete (LL):
1. First coat: EFF-STOP Premium, Masonry Primer/Sealer (ESPR00)
2. Second coat: EVERSHIELD, Exterior Flat Paint (EVSH10)
3. Third coat: EVERSHIELD, Exterior Flat Paint (EVSH10)

G. Exterior Concrete Block (F):
1. First coat: Smooth BLOCFIL Premium, Interior/Exterior Concrete Block Filler (SBPR00)
2. Second Coat: EVERSHIELD, Exterior Flat Paint (EVSH10)
3. Third coat: EVERSHIELD, Exterior Flat Paint (EVSH10)

H. Exterior Wood (SGE):
1. First coat: E-Z Prime (EZSL00)
2. Second coat: EVERSHIELD, Exterior /Interior Semi-Gloss Paint (EVSH50)
3. Third coat: EVERSHIELD, Exterior /Interior Semi-Gloss Paint (EVSH50)

I. Exterior Wood - Solid Color Stain (F):
1. First coat: Deck, Fence & Siding Stain, 100% acrylic stain (STSE10)
2. Second coat: Deck, Fence & Siding Stain, 100%, acrylic stain (STSE10)

J. Interior Primer Only behind FRP or VWC:
1. Gypsum Drywall: Zinsser Shieldz Universal Wallcovering Primer (SHZ-02)
2. Concrete Block: Smooth BLOCFIL Premium, Interior/Exterior Concrete Block Filler (SBPR00)

K. Interior Flat Wall Paint (F):
1. Gypsum Drywall:
   a. First coat: (VINYLASTIC Premium, Interior Pigmented Sealer (VNPR00)
   b. Second coat: SUPREMA, Interior Flat Paint (SPMA10)
   c. Third coat: SUPREMA, Interior Flat Paint (SPMA10)
2. Concrete Block:
   a. First coat: Smooth BLOCFIL, (SBPR00)
   b. Second coat: SUPREMA, Interior Flat Paint (SPMA10)
   c. Third coat: SUPREMA, Interior Flat Paint (SPMA10)
3. Acoustic Surfaces:
   a. First Coat: W615 Acoustikote, latex ceiling paint
   b. Second Coat: W615 Acoustikote, latex ceiling paint (If required for complete coverage)

L. Interior Egg-Shell Enamel (ESE):
1. Gypsum Drywall:
   a. First coat: VINYLASTIC Premium, Interior Pigmented Sealer (VNPR00)
   b. Second coat: EVEREST Interior Eggshell Paint (EVER30)
   c. Third coat: EVEREST Interior Eggshell Paint (EVER30)
2. Concrete Block:
   a. First coat: Smooth BLOCFIL Premium, Interior/Exterior Concrete Block Filler (SBPR00)
   b. Second coat: SUPREMA, Interior Eggshell Paint (SPMA40)
   c. Third coat: SUPREMA, Interior Eggshell Paint (SPMA40)
3. Cement Plaster:
   a. First coat: VINYLASTIC Premium, Interior Pigmented Sealer (VNPR00)
   b. Second coat: SUPREMA, Interior Eggshell Paint (SPMA30)
   c. Third coat: SUPREMA, Interior Eggshell Paint (SPMA30)

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4. Ferrous Metal:
   a. First coat: BLOC-RUST Premium, Rust-Preventative Metal Primer (BRPR00 Series)
   b. Second coat: EVEREST Interior Eggshell Paint (EVER30)
   c. Third coat: EVEREST Interior Eggshell Paint (EVER30)
5. Galvanized Metal:
   a. Pretreatment: Solvent clean, then acid etch with Krud Kutter Metal Clean & Etch
   b. First coat: ULTRA-GRIP Premium, Acrylic Multi Purpose Primer (UGPR00 Series)
   c. Second coat: EVEREST Interior Eggshell Paint (EVER30)
   d. Third coat: EVEREST Interior Eggshell Paint (EVER30)

M. Interior Semi-Gloss Enamel (SGE):
1. Ferrous Metal:
   a. First coat: BLOC-RUST Premium, Rust-Preventative Metal Primer (BRPR00 Series)
   b. Second coat: EVEREST Interior Semi-Gloss Paint (EVER50)
   c. Third coat: EVEREST Interior Semi-Gloss Paint (EVER50)
   d. Note: Where trim paint is an extension of or same as exterior color, use the same paint specified under “Exterior Metals”.
2. Galvanized Metal:
   a. Pretreatment: Solvent clean, then acid etch with Krud Kutter Metal Clean & Etch
   b. First coat: ULTRA-GRIP Premium, Acrylic Multi Purpose Primer (UGPR00 Series)
   c. Second coat: EVEREST Interior Semi-Gloss Paint (EVER50)
   d. Third coat: EVEREST Interior Semi-Gloss Paint (EVER50)
   e. Note: Where trim paint is an extension of or same as exterior color, use the same paint specified under “Exterior Metals”.
3. Wood Doors and Trim:
   a. First coat: DECO-PRIME Interior Cabinet, Door & Trim Primer (DCPR00)
   b. Second coat: SUPREMA, Interior Semi-Gloss Paint (SPMA50)
   c. Third coat: SUPREMA, Interior Semi-Gloss Paint (SPMA50)
4. Concrete Block:
   a. First coat: Smooth BLOCFIL Premium, Interior/Exterior Concrete Block Filler (SBPR00)
   b. Second coat: SUPREMA, Interior Semi-Gloss Paint (SPMA50)
   c. Third coat: SUPREMA, Interior Semi-Gloss Paint (SPMA50)
5. Gypsum Drywall:
   a. First coat: VINYLASTIC Premium, Interior Pigmented Sealer (VNPR00)
   b. Second coat: EVEREST Interior Semi-Gloss Paint (EVER50)
   c. Third coat: EVEREST Interior Semi-Gloss Paint (EVER50)

N. Interior Gloss Enamel (GE):
1. Ferrous Metal:
   a. First coat: BLOC-RUST Premium, Rust-Preventative Metal Primer (BRPR00 Series)
   b. Second coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
   c. Third coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
2. Galvanized Metal:
   a. Pretreatment: Solvent clean, then acid etch with Krud Kutter Metal Clean & Etch
   b. First coat: ULTRA-GRIP Premium, Acrylic Multi Purpose Primer (UGPR00 Series)
   c. Second coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
   d. Third coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
   e. Note: Where trim paint is an extension of or same as exterior color, use the same paint specified under “Exterior Metals”.
3. Wood Doors and Trim:
   a. First coat: DECO-PRIME Interior Cabinet, Door & Trim Primer (DCPR00)
   b. Second coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)

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c. Third coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)

4. Concrete Block:
   a. First coat: Smooth BLOCFIL Premium, Interior/Exterior Concrete Block Filler (SBPR00)
   b. Second coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
   c. Third coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
5. Gypsum Drywall:
   a. First coat: VINYLASTIC Premium, Interior Pigmented Sealer (VNPR00)
   b. Second coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)
   c. Third coat: EVERSHIELD, Exterior /Interior Gloss Paint (EVSH60)

O. Stain and Lacquer (SL):
1. Wood Doors and Trim (transparent):
   a. Stain: (tint as selected by Architect) Gemini Craftsman Stain
   b. First coat: Gemini Sanding Sealer (210-0222-1)
   c. Second coat: Gemini Gem Coat Semi-Gloss Lacquer (510-0275-1)
   d. Third coat: Gemini Gem Coat Semi-Gloss Lacquer (510-0275-1)

2. Wood Trim (opaque):
   a. First coat: W703 Acri-Hues, acrylic latex stain
   b. Second coat: W703 Acri-Hues, acrylic latex stain

P. Acoustic Surfaces:
1. First coat: W615 Acoustikote
2. Second coat: W615 Acoustikote as required for complete coverage

Q. Exposed (Sealed) Concrete Floors:
1. "Rainguard Regular": Coatings as required to seal the floor.

END OF SECTION 09 9100

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SECTION 10 1400 - SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide identifying devices where shown on the Drawings, as specified herein, and as needed for a complete and proper installation including, but not necessarily limited to:

1. Restroom signage.
2. Room identification signage (room name, room number).
3. Accessibility signage.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 10 1420: Dimensional letter signage.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop Drawings: Submit shop drawings showing details of installation and anchorage sufficient to enable proper interface with the work of other trades.
4. Samples:
   a. Provide color chip samples to match colors specified.
   b. Provide sample of sign for example of quality and design characteristics.

1.3 QUALITY CONTROL

A. Code References:
1. Raised Characters: 11B-703.2.
2. Braille: Section 11B-703.3.
3. Visual Characters: Section 11B-703.5.
4. Pictograms: Section 11B-703.6.
5. Symbols of Accessibility: Section 11B-703.7.
6. International Symbol of Accessibility: Section 11B-703.7.2.1.

PART 2 - PRODUCTS

2.1 APPROVED MANUFACTURERS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Acceptable Products: Design of plexiglass signs is based on the use of manufacturer’s standard products: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work

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include, but are not limited to, the following:

1. ASI Sign Systems.
2. Inland Pacific.
3. Innerface Architectural Signage, Inc.
4. Mohawk Sign Systems.
5. Vomar Products, Inc.
6. Best Signs, Inc.

2.2 SIGNS

A. **Type "A" - Restroom Signs**:

1. Type A1: MEN - 12" equilateral triangle.
2. Type A2: WOMEN - 12" diameter circle.
3. Type A3: UNISEX - 12" diameter circle with equilateral triangle inscribed. Triangle color shall contrast with circle color. Circle color shall contrast with door color.
4. Type A4: Restroom, with raised wheelchair logo, 3/4" high raised text and braille.
   a. Braille: Contracted (Grade 2) braille symbols on sign A4 per CBC Section 11B-703.3.
5. Material:
   a. Types A1, A2, and A3: 1/4" thick acrylic plastic, 1/4" radius corners.
   b. Type A4: 1/8" acrylic plastic base plaque, integral color (single piece, not laminated), 1/4" radius corners, 1/32" raised letters and numbers.
6. Color: Black with white silk screened lettering and graphic, see detail.
7. Attachment: Epoxy and vandal resistant screws.
8. Text: See graphics/text detail on the drawings.
9. Letter Style: Calibri, all capital letters.

B. **Type "B" - Room Name, Room Number, or Tactile Exit Signs:**

1. Type B1: 4"H x Length as Required (LAR).
2. Type B2: 4"H x LAR.
3. Type B3: 5-1/2"H x LAR.
4. Type B4: 4"H x LAR, text: “EXIT”
5. Material: 1/8" acrylic plastic base plaque, integral color (single piece, not laminated), 1/4" radius corners, 1/32" raised letters and numbers.
6. Color: Black with white lettering.
7. Attachment:
   a. Exterior: Epoxy and minimum of 2 vandal resistant screws
   b. Interior: Epoxy
8. Letter style: Calibri, all capital letters.
9. Text: Refer to the Door Schedule and related details on the Drawings.
10. Numeral height: 2".
11. Letter height: 1". Except at access doors for automatic sprinkler riser rooms and fire pump rooms which require 2” minimum height with a minimum stroke of 3/8”.
12. Braille: Contracted (Grade 2) braille symbols on all room name and number signs per Section 11B-703.3.

C. **Type "C" - Building Access Sign:**

1. Material: 1/8" acrylic plastic base plaque, integral color (single piece, not laminated), 1/4" radius corners, 1/32" raised letters and numbers.
2. Color: International Blue with white International Symbol of Accessibility logo.
3. Attachment: Epoxy with vandal resistant screws.
4. Size: 8" x 8"
5. Braille: Contracted (Grade 2) braille notation per CBC Section 11B-703.3.

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2.3 BRAILLE REQUIREMENTS

A. Braille Symbols:
   1. Contracted (Grade 2) braille.
   2. Braille Dots:
      a. Base diameter: 0.059” to 0.063”.
      b. Distance between two dots in the same cell: 0.100”.
      c. Distance between corresponding dots in adjacent cells: 0.300”.
      d. Raise dots 0.025” to 0.037” above the background.
      e. Distance between corresponding dots from one cell directly below: 0.395” to 0.400”.
      f. Dots shall have domed or rounded tops.

2.4 TACTILE CHARACTER REQUIREMENTS

A. Raised Character Proportions per CBC Section 11B-703.2.4 and 11B-703.2.6:
   1. Width of upper-case letter "O" shall be a minimum of 60% and a maximum of 110% of the height of the upper-case letter "I".
   2. Stroke thickness of upper-case letter "I" shall be 15% maximum of the height of the character.

B. Visual Character Proportions per CBC Section 11B-703.5.4 and 11B-703.5.7:
   1. Width of upper-case letter "O" shall be a minimum of 60% and a maximum of 110% of the height of the upper-case letter "I".
   2. Stroke thickness of upper-case letter "I" shall be a minimum of 10% and a maximum of 20% maximum of the height of the character.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Install the work of this Section in strict accordance with the manufacturers' recommendations as approved by the Architect, using only the approved mounting materials, and locating all components firmly into position, level and plumb.

B. Mounting Location and Height. Install signs on the nearest wall adjacent to the latch side of the door. Where there is no wall or space on the latch side, including at double doors, place signs on the nearest adjacent wall, preferably on the right.
   1. Mount signs 48" minimum above the finish floor or ground surface, measured from the baseline of the lowest line of Braille and 60" maximum above the finish floor or ground surface measured from the baseline of the highest line of raised characters.
   2. Determine mounting location such that a person may approach within 3" of signage without encountering protruding objects or standing within the swing of the door.

C. At locations where an exit sign and a room identification sign are back to back on glass, align both signs and make signs the same size.

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D. At locations where a sign is mounted on glass with no opposing sign, provide blank sign of the same size to conceal mounting adhesive.

E. Where signs are mounted on split-faced masonry, grind masonry to provide smooth surface to mount signs.

END OF SECTION 10 1400

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SECTION 10 1420 - DIMENSIONAL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide dimensional signage where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 10 1400: Signage.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop Drawings: Submit shop drawings showing details of installation and anchorage sufficient to enable proper interface with the work of other trades.
4. Samples:
a. Provide color chip samples to match colors specified.
b. Provide sample of signage for example of quality and design characteristics.

PART 2 - PRODUCTS

2.1 APPROVED MANUFACTURERS

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Acceptable Products: Design of solid letters is based on the use of manufacturer’s standard products: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
1. Metal Arts.

2.2 SOLID LETTERS

A. Solid Letters:
1. Letter style: Helvetica Medium, "CAPS"
2. Vertical height: As indicated on the Drawings.
3. Material: 1" deep, cast aluminum, with 2 coats baked-on acrylic urethane enamel.
4. Text: As indicated on the Drawings.
5. Color: As selected by the Architect from the manufacturer's standard colors.
6. Attachment: Concealed with mechanical anchors with epoxy adhesive.

PART 3 - EXECUTION

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3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Install the work of this Section in strict accordance with the manufacturers' recommendations as approved by the Architect, using only the approved mounting materials, and locating all components firmly into position, level and plumb.

B. Mounting Location. Install dimensional signage where indicated on the Drawings.

END OF SECTION 10 1420

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SECTION 10 2810 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide toilet accessories where indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturer's recommended installation procedures.
   3. Shop Drawings: Submit dimensioned drawings as required to depict the space required for these items, and their interface with the work of other trades.

B. Contract Closeout Submittals: Operation and Maintenance manuals in accordance with requirements of Section 01 7820.

PART 2 - PRODUCTS

2.1 TOILET ACCESSORIES

A. Basis of Design: Bobrick Contura Series.
   1. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Provide all listed products by one manufacturer:

GB-1: Grab Bar constructed of 18 gauge type 304 satin-finish stainless steel, horizontal 2-wall type, concealed mounting, stainless steel, 1-1/2" outside diameter; Bobrick B-6897 .

GM-1: Tempered Glass Mirror; satin finish stainless steel angle frame with corners mitered, ground, and polished smooth; No. 1 quality, 1/4" thick tempered select float glass selected for silvering and electrolytically copper plated by the galvanic process; concealed theft resistant mounting. Bobrick B-2908. Sizes as indicated.

PT-1: Paper towel dispenser, with Towelmate surface mounted satin-finish stainless steel; tumbler lock on top of cabinet radius contoured front door, with one piece drawn cover; Bobrick B-4262.

SD-1: Liquid Soap Dispenser surface mounted; dispenses all-purpose soap corrosion resistant valves, contoured front with drawn cover satin stainless steel, with vessel attached to back; Bobrick B-4112.

TP-1: Toilet Paper Dispenser surfaced mounted multi-roll dispenser; with contoured front, with one piece drawn cover and theft resistant heavy duty spindles; Bobrick B-4288.

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TSC-1: Toilet Seat Cover Dispenser; satin stainless steel contoured front, beveled flanges, no exposed corners or edges; Bobrick B-4221.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

B. All fixtures shall be provided with vandal-resistant screws and attachments.

C. General Contractor shall provide solid wood, metal or masonry backing as required for all wall-mounted fixtures.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install each item in its proper location, firmly anchored into position, level and plumb, and in accordance with the manufacturer's recommendations.

END OF SECTION 10 2810

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SECTION 10 4400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide fire protection specialties where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop Drawings: Submit shop drawings as needed to depict the space required for these items, and their interface with the work of other trades.

B. Contract Closeout Submittals: Manufacturer's recommended operating instructions in accordance with requirements of Section 01 7820.

1.3 DEFINITIONS

A. Light (Low) Hazard Location: Locations where total amounts of Class A combustible materials is of minor quantity, including offices, classrooms, and assembly halls.

B. Extra (High) Hazard Location: Locations where the total amounts of Class A combustibles or Class B flammable are present in storage, production, or use, and/or finished product over and above those expected and classed as Ordinary (Moderate) Hazards, including laboratories, woodworking and vehicle repair.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 SURFACE MOUNTED FIRE EXTINGUISHER BRACKETS

A. J.L. Industries No. MB810 or MB818.

2.3 FIRE EXTINGUISHER CABINETS AT LIGHT (LOW) HAZARD LOCATIONS

A. Semi-recessed Cabinets at 2 X 4 Walls: J.L. Industries Cosmopolitan 8137W17, 2-1/2" projection, stainless steel, #4 satin finish, rolled edge construction with corners welded and ground smooth.

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B. Recessed Cabinets at 2 X 6 (and larger) Walls: J.L. Industries Cosmopolitan 8135W17, 3/8" projection, stainless steel with #4 satin finish, flat trim construction with corners welded and ground smooth.
C. Where cabinets occur in fire-rated construction, provide J.L. Industries FIRE-FX option; ASTM E814, labeled for 1-hour combustible and 2-hour non-combustible construction. WHI- TEST# 631-021201 / 631-021202

2.7 FIRE EXTINGUISHERS

A. Light (Low) Hazard Locations: Provide one multi-purpose, dry chemical, 5 lb. fire extinguisher, **UL rating of 3A-40BC** at each cabinet.
1. Heavy duty steel cylinder, metal valve and siphon tube, replaceable molded valve stem seal, corrosion and impact resistant epoxy finish, visual pressure gauge, pull pin, upright grip operation.
2. JL Industries, Cosmic 5E or approved equal.

B. Service, charge, and tag each fire extinguisher not more than five calendar days prior to the Date of Substantial Completion of the Work as that Date is established by the Owner.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Owner, anchoring all components firmly into position for long life under hard use.

C. Locate bracket-mounted extinguishers where directed by the Owner and the Fire Department official.

END OF SECTION 10 4400

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SECTION 11 4000 - FOOD SERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Provide food service equipment, including stainless steel items, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 06 4000: Rough openings for equipment and accessories in cabinets.
3. Section 22 0000: Final plumbing connections of equipment and accessories.
4. Section 26 7000: Final electrical connections of equipment and accessories.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop Drawings: Submit shop drawings showing details of layout, installation, anchorage, and interface with the work of other trades.
4. **Utility Service Connections:** Deviations from utility requirements indicated on the Drawings shall be clearly noted and coordinated with the trades involved.

B. Contract Closeout Submittals: Submit in accordance with Section 01 7700.
1. Operation and Maintenance manuals in accordance with requirements of Section 01 7820.
2. Manufacturer's recommended cleaning procedures.

1.3 QUALITY ASSURANCE

A. Except as otherwise specifically approved in writing by the Architect, manufacture and install all materials of this Section in strict compliance with at least the minimum requirements of:
1. Underwriters' Laboratories, Inc.(UL);
2. American Gas Association (AGA);
3. American Society for Testing and Materials (ASTM);
4. American Society of Mechanical Engineers (ASME);
5. National Sanitation Foundation (NSF);
6. National Fire Protection Association (NFPA);
7. All governmental agencies having jurisdiction.

B. Provide refrigeration systems with materials in compliance with EPA and Federal Air Emissions Controls Laws governing and prohibiting the use of Ozone Depleting Refrigerants.

1.4 SPECIAL WARRANTY

A. In addition to the warranty requirements of the Contract Documents, submit 2 original copies of the manufacturer's **5-year** factory warranty on all refrigeration equipment.

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PART 2 - PRODUCTS

2.1 GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Provide only new materials, of the highest grade available, free from defects and imperfections, of recent manufacture, and with the following attributes except as may be otherwise approved by the Architect.
   1. Where two or more identical articles or pieces of equipment are required, provide of identical manufacture.
   2. Where model numbers are indicated and the specified models are no longer manufactured, provide the manufacturer's updated model if approved by the Architect.

C. Bolts, Screws, and Rivets:
   1. Wherever possible, provide equipment and connections with exposed surfaces free from bolt heads, screw heads, and rivets.
   2. Wherever bolts are used to fasten trim to paneling of counters, cabinets, and similar equipment, and to fasten tops of counters to their framing, use corrosion-resisting metal of the same alloy composition as the metal to which they are fastened.
   3. When iron bolts or screws are authorized to be used, provide a suitable metallic coating for protection against corrosion.
   4. Wherever threads of bolts or screws might come into contact with a wiping cloth, cap the threads with a suitable lock washer and chromium plated or bronze acorn nut.

D. Provide all items of equipment complete with starters, controls, and similar items as needed for proper and recommended operation.

E. Provide drawer pulls complying with CBC Section 11B-309.4.

2.2 MATERIALS

A. Stainless steel:
   1. Provide US Standard Gage 18-8, type 302, maximum carbon .012%, with No. 4 finish;
   2. Where spans exceed 30" in the least direction, provide 16 gage material;
   3. Where spans exceed 60" in the least direction, provide 14 gage material;
   4. Finish welds to match the No. 4 finish.

B. Welding and Soldering:
   1. Shop weld or solder all seams and joints as the nature of the material used may require;
   2. Weld all materials 18 gage and heavier.

C. Metal Tops:
   1. Provide metal tops of one piece welded construction, reinforced on the underside with galvanized steel channels welded in place so tops can support heavy weights without deflection;
   2. Provide cross braces at not closer than 30" on centers.

D. Except as otherwise detailed or specified, make rolled edges approximately 1-3/8" in diameter, with corners bullnosed, ground, and polished.

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E. Corners:
   1. At dish tables, drain tables, backsplashes, and turned-up edges, provide radius bends in all horizontal and vertical corners, coved at intersections, unless otherwise detailed or specified;
   2. Make rounded and coved corners, and radius bends, 1/2" radius or more.

F. Legs and Cross Rails:
   1. Fabricate from 16 gage 1-5/8" diameter stainless steel tubing unless otherwise detailed or specified;
   2. At cross rails, make all welds continuous and grind smooth; tack welds are not acceptable;
   3. Fit the bottoms of legs at the floor with a stainless steel bullet-type foot having not less than 2" adjustment;
   4. Fasten legs to equipment:
      a. To sinks by means of completely enclosed sanitary stainless steel gussets welded into place and reinforced with bushings having set screws for securing the legs;
      b. To metal tops and dish tables with the same type enclosed gussets as specified above, but welded to stainless steel channels 14 gage or heavier.
   5. Stainless steel adjustable feet:
      a. Provide 302 or 304 stainless steel exterior on not less than 1-1/2" diameter threaded cold rolled steel rod;
      b. Provide not less than 2" adjustment;
      c. Weld the assembly, and provide seismic anchorage approved by the Architect and Division of the State Architect.

G. Shelves:
   1. At fixtures with enclosed bases, turn up shelves at back and sides, and feather slightly to assure a tight fit to enclosure panels;
   2. At fixtures with open bases, notch shelves a full 90̊ and weld tightly to leg with tight joints at all intersections of shelf and leg.

H. Closures: Fill the ends of all fixtures, backsplashes, shelves, and similar items, by forming the metal or welded sections, if necessary, to finish the entire rear of the fixture or similar item flush to walls and adjoining fixtures.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

B. Kitchen equipment supplier to provide DSA approved equipment anchorage details and devices for seismic connections at no additional cost.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine areas and conditions under which the work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION, GENERAL

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A. Except as modified by requirements of governmental agencies having jurisdiction, install in accordance with recommendations of the manufacturer as approved by the Architect and the pertinent UL design requirements.

B. Coordinate with adjacent trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

C. Put all items of equipment through at least five complete cycles of operation, adjusting as needed to assure proper operation.

3.3 SEISMIC RESTRAINT

A. All “hardwire and gas” kitchen equipment shall be installed with seismic restraints per *Guidelines for Seismic Restraints of Kitchen Equipment* as published by SMACNA and approved by DSA.

B. Where anchorage details are not shown on the drawings or in the guidelines, the field installation shall be subject to the approval of the Architect and the DSA Field Engineer.

C. A copy of the *Guidelines for Seismic Restraints of Kitchen Equipment* shall be provided by the Contractor and kept on the job site at all times.

3.4 CLEANING UP

A. In addition to other stipulated requirements for cleaning, completely remove finger prints and traces of soil from the surfaces of all work of this Section, using only those cleaning materials recommended for the purpose by the manufacturer of the material being cleaned.

3.5 DEMONSTRATION

A. Upon completion and prior to the acceptance of the work of this Section, schedule and conduct a meeting with the Owner and his personnel to train and thoroughly familiarize them with information necessary to operate and maintain the work. Include, but do not limit the training to:
   1. Warranty coverage and requirements;
   2. Operation and maintenance manuals;
   3. Special tools and spare parts;
   4. Safety procedures and requirements;
   5. Manufacturer's recommended cleaning procedures;
   6. Identification systems;
   7. System operation and features including, but not limited to:
      a. Start-up;
      b. Control sequences;
      c. Shut down;
      d. Controls manipulation;
      e. Emergency procedures;
      f. Noise/vibration adjustment;
      g. Effective energy utilization.
   8. System maintenance.

B. Demonstration Meeting:
   1. Minimum of 4 hours.
   2. Demonstrate system through a minimum of 3 cycles.
   3. Prepare and execute In-Service Certification form and submit with closeout documentation.

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END OF SECTION 11 4000

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SECTION 11 6820 - EXTERIOR COURT ATHLETIC EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Provide outdoor recreation equipment where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 31 2000: Earthwork
3. Section 32 1720: Site Painting and Markings

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Submit manufacturer's recommended installation procedures.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Outdoor equipment products in this section are by LA Steelcraft. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other approved manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Acceptable manufacturers:
1. LA Steelcraft
2. Porter
3. Draper

2.2 BASKETBALL

A. Single standard, Model 12C56 by LA Steelcraft, 5-9/16" post, 6' extension; backboard 01 with 2" wide target and border, Model 600N goal with nylon net.
1. Footing: 30" dia. x 54" deep concrete.
2. Finish: Galvanized.
3. Post Pads: Model PP-656 by LA Steelcraft.

2.3 VOLLEYBALL

A. Volleyball Posts and Sleeves:
1. Pair 3-1/2" posts per court, with cast in sleeve for 3-1/2" O.D. post with locking and sealing steel cap and wrench (1 per set), welded bottom drain pipe, and steel rod post support.
2. Footing: 18" dia. x 39" deep, 3000 psi concrete.
3. Acceptable Products: Combination Volleyball/Badminton Post Model VBBM3-BG with Model 350E cast-in

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sleeve by LA Steelcraft.

B. Volleyball Nets:
1. One net per court, 4" sq. mesh, #42 black nylon, white top, bottom and end binding, 5/32" vinyl covered aircraftt cable through top and bottom, 3000 pund break strength, with wood dowel in end binding. 32' long x 39" wide.
2. Acceptable Products: Model E-COMP-32 by LA Steelcraft

2.5 TETHERBALL

A. Pole and Accessories:
1. 2-3/8" O.D. galvanized pipe tetherball post, 10'-0" high above ground, with post cap, chain, swivel snap, ball and rope with bright red foul mark taped to the post. Provide 24" dia. x 42" deep concrete footing.
2. Acceptable Products: Model TBPC by LA Steelcraft with Model 238-E sleeve caps.

2.9 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.3 INSTALLATION

A. Install the work of this Section in strict accordance with the manufacturers' recommendations as approved by the Architect, and with the requirements of governmental agencies having jurisdiction.
B. Install equipment plumb, level, straight, square, accurately aligned, correctly located, to proper elevation, and secure.

C. Install equipment using manufacturer's supplied hardware and fasteners

D. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.

E. Remove and replace damaged components that cannot be successfully repaired, as determined by Architect.

END OF SECTION 11 6820

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SECTION 22 0000 - PLUMBING

PART 1: - GENERAL

1.1 GENERAL MECHANICAL PROVISIONS:

A. The General Mechanical Provisions, Section 23 0000, shall form a part of this Section with the same force and effect as though repeated here.

1.2 SCOPE:

A. 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:
1. Sanitary sewer system.
2. Domestic water system.
3. Drain system (including condensate drain).
4. All equipment as shown or noted on the drawings or as specified.
5. Demolition as indicated on drawings. Where demolition is called for, remove all equipment, piping, braces, housekeeping pads, supports and related items no longer required.
6. Lead Free: All equipment, fixtures, valves and fixture stops providing water for human consumption installed after January 1, 2010, must meet the new “Lead Free” requirements for the State of California.

B. Work Specified Elsewhere:
1. Line voltage power wiring, disconnect switches and installation of all starters are included in the Electrical Section unless otherwise noted.
2. Concrete and reinforcing steel unless specifically called for on the drawings or specifications.
3. Painting unless specifically called for in the drawings or specifications.
4. Carpentry.

PART 2: - PRODUCTS

2.1 PIPING MATERIALS:

A. Sanitary Sewer:
1. Soil, Waste and Vent Piping (Non-Pressurized) - Inside Building and Within Five Feet of Building Walls:
a. Standard weight coated cast iron pipe and fittings. Plain end, CISPI 301, ASTM A888, or hub end with rubber gaskets, ASTM A74, ASTM C564. ABI, Tyler, Charlotte. Couplings shall be heavy-duty shielded couplings, Type 304 stainless steel, with neoprene gasket, ASTM C-1540. Husky HD 2000, Clamp-All 80, Mission HeavyWeight. MG Couplings are also acceptable. 2" and smaller exposed to view shall be galvanized steel, ASTM A53, with coated cast iron recessed drainage fittings, ANSI B16.12.
Where required by soil conditions, as determined by the method described in ASTM A74-09, Appendix X2, below grade cast iron pipe and fittings shall have 8 mil (minimum) Polyethylene Encasement (Poly Wrap), Per ANSI/AWWA C105/A21.5.
b. Outside Building: Polyvinyl chloride (PVC), SDR 35, ASTM D3034 with PVC fittings with rubber ring joints. Piping within 10 feet of water piping shall be solid wall Schedule 40 PVC, ASTM D1785, D2665, with solvent weld DWV fittings, ASTM D2665, D3311. Piping with less than 24" of cover outside building walls shall be cast iron.

2. Cleanouts: Comparable models of Josam, Wade, Mifab or Zurn are acceptable. Grease plug prior to installation. Floor Cleanouts: Smith 4023 with nickel bronze top in finished areas; Smith 4223 in utility areas. Wall Cleanouts: Smith 4532 with stainless steel cover and screw. Pipe Cleanouts: Iron body with threaded brass plug. Site cleanouts more than 5’ outside building may be PVC with PVC plug.
3. Cleanout Box: Precast reinforced concrete. Cast iron lid marked for service. Christy F8 in foot traffic areas; G5 in roadways. Provide with PVC pipe extension down to top of pipe.

B. Water:

1. Cold Water Piping: Materials used in the water system, except valves and similar devices, shall be of like material, except where otherwise approved by Engineer and Authority Having Jurisdiction, prior to start of work. For existing water systems of galvanized steel or copper, materials shall match existing.
   a. Inside Building, Within Five Feet of Building Walls, and All Above Grade:
      (1) Schedule 40 galvanized steel pipe, ASTM A53. 150 psi galvanized malleable iron screwed fittings, ANSI B16.3.

   -or- (2) Hard temper seamless copper, ASTM B88. Wrought copper fittings, ANSI B16.22. Type L with brazed joints (1100F, min.). 1-1/2" and smaller above grade may be soldered, 95-5 tin-antimony solder. All nipples shall be lead-free red brass (85% copper). Above grade fittings may be copper press fittings, ASME B16.18 or ASME B16.22. EPDM O-rings. Installation shall be in accordance with the manufacturer’s installation instructions. ProPress.
   b. Outside Building - Below Grade:
      (1) Same as Inside Building. Galvanized steel shall have protective coating.

   -or- (2) 3" and Smaller: Schedule 80 Polyvinyl chloride (PVC), ASTM D1785, with Schedule 80 PVC solvent weld fittings, ASTM D2466 where approved by administrative authority.
   c. Draft Hydrant Piping:
      (1) Above Grade: Schedule 40 galvanized steel pipe, ASTM A53. 150 psi galvanized malleable iron screwed fittings, ANSI B16.3. Galvanized steel shall have protective coating.
      (2) Underground Plastic: Polyvinyl chloride, Class 200, DR 14, AWWA C900, with rubber ring joints, ASTM D1869. Cast or ductile iron fittings, AWWA C110 or C153, Class 250 or higher, with rubber ring joints, ASTM D1869.

   -or- (3) Underground Ductile Iron Pipe: Ductile iron pipe shall be in accordance with AWWA C151. Ductile iron pipe shall be minimum Thickness Class 50. Joints for ductile iron pipe shall be rubber gasket push on joints in accordance with AWWA C111. Cast or ductile iron fittings, AWWA C110 or C153, Class 250 or higher, with rubber ring joints, ASTM D1869. Comply with AWWA C600, Ductile Iron Water Mains and Their Appurtenances, and Tulare County Fire Department Requirements.
2. Hot Water Piping:
   a. Inside Building - Above Slab: Same as Cold Water Piping - Inside Building.
   b. Outside Building or Below slab: Pre-insulated. Type L copper core. 1" foamed polyurethane insulation for less than 1” nominal pipe, 1-1/2” for 1” and larger nominal pipe. See Title 24, Part 6 “California Energy Code” for temperatures above 140ºF. Polyvinyl chloride or high density polyethylene jacket. Sealed ends. Brazed joints (1100F, min.) Fittings shall be wrought copper, with brazed joints (1100F, min.). Provide anchor points and bolster pads as required. Submit shop drawing from manufacturer showing anchor points and bolster pad locations. Perma-Pipe/Ricwil, Thermacor, Thermal Pipe Systems.
3. Valves and Specialties:
   a. Valves:

(1) General: Manufacturer's model numbers are listed to complete description. Equivalent models of Crane, Kitz, Milwaukee, Nibco, Stockham, Walworth or Watts are acceptable. All valves of a particular type or for a particular service shall be by the same manufacturer. Butterfly valves may be substituted for 2 1/2" and larger gate valves above grade; see specification below. Provide a minimum of two operating "T" handles for underground valves for each underground system where valves are required. The lengths of the handles are dependent upon the depth of the valves and the ability of the handles to fully open and/or close the valves. At least one “T” handle for each system shall be on site at the beginning of the installation of a particular system for emergencies, and the Construction Manager shall have access to these “T” handles and valves.

(2) Gate Valve: 2" and Smaller: All bronze. Non-rising stem. Threaded bonnet. Wedge disk. Malleable iron handwheel. 200 psi CWP. Nibco T-113-LF. 2 1/2" and Larger: Iron body, bronze mounted. Non rising stem. Resilient wedge disk. 200 psi CWP. Flanged or AWWA hub end as applicable. Nibco F-619-RWS. Underground valves shall have square operating nut.

(3) Butterfly Valve: Ductile iron threaded lug body. Aluminum bronze disk. EPDM molded-in liner and seals. 416 stainless steel shaft. 6" and smaller valves shall have multi-position lever handle. 8" and larger valves shall have gear operator. Provide 2" extension neck at insulated pipes. Nibco LD-2000.

(4) Ball Valve: Full port. Lead free brass body, cap, stem, disk and ball. Screwed connection. Lever handle. PTFE seat and stem packing. Min. 400 psi CWP. CSA-US and UL listed. Nibco T-FP-600A-LF.

(5) Valve Box: Precast reinforced concrete. Cast iron lid marked for service. Christy F8 in foot traffic areas; G5 in roadways. Provide with PVC pipe extension down to top of pipe.

b. Miscellaneous Specialties:

(1) Union: 2" and Smaller: AAR malleable iron, bronze to iron ground seat. 300 psi. Unions for copper piping shall be copper or lead free cast bronze. Anvil. Size 2-1/2" and Larger: Grooved pipe, synthetic gasket, malleable iron housing. EPDM gasket, NSF 61 rated. Victaulic Style 77, Gruvlok.

(2) Dielectric Coupling: Insulating union or flange rated for 250 psig. Wilkins DUXL Series.

(3) Shock Absorber: Multiple bellows. All stainless steel construction. Designed and applied in accordance with PDI WH201. Amtrol, Smith, Wade, Zurn.

C. Drain Piping (including Condensate): Same as inside building cold water piping.

D. Miscellaneous Piping Items:

1. Pipe Support:

a. Pipe Hanger: Steel "J" hanger with side bolt for piping 4" and smaller; steel clevis hanger for piping 5" and larger. Load and jam nuts. Size and maximum load per manufacturer's recommendation. Felt liner for copper piping. Hanger and rod shall have galvanized finish. B-Line, Anvil, Unistrut.

b. Isolating Shield: Galvanized steel shell and reinforcing ribs. 1/4" non-conducting hair felt pad. Pipe hanger in accordance with paragraph above. Increase hanger size per manufacturer's recommendation. B-Line, Semco, Superstrut.

c. Construction Channel: 12-gage, 1-5/8" x 1-5/8" galvanized steel channel. Single or multiple section. Self-locking nuts and fittings. B-Line, Anvil, Unistrut.

2. Flashing: Vent flashing shall be 4 lb/ft2 lead, 16" sq. flange, length sufficient to be turned down 2" into vent. Oatey. Flashing for other piping through roof shall be prefabricated galvanized steel roof jacks with 16" sq. flange. Provide clamp-on storm collar and seal water tight with mastic. For cold

process built-up roof, material shall be 4 lb/ft^2 lead instead of galvanized steel. For single-ply roofing, use the roofing manufacturer's recommended flashing material.

2.2 PIPING INSULATION MATERIALS:

A. General: All piping insulation materials shall have fire and smoke hazard ratings as tested under ASTM E-84 and UL 723 not exceeding a flame spread of 25 and smoke developed of 50.

B. Pre-Molded Fiberglass: Heavy density sectional pre-molded fiberglass with vapor barrier laminated all service jacket and pressure sealing vapor barrier lap. Thermal conductivity shall not exceed 0.25 Btu-in/hr-ft2-F at a mean temperature of 50F. Perm rating 0.02, ASTM E96. Puncture rating 50 Beach units, ASTM D781. Provide 3" (min.) wide tape of same material as lap for butt joints. For hot water piping to 140°F, thickness shall be 1" for pipe sizes less than 1"; 1-1/2" thickness for pipe sizes 1" and 1-1/2"; 2" thickness for 2" and larger. See Title 24, Part 6 "California Energy Code" for temperatures above 140°F. Knauf, Johns-Manville, Owens-Corning.

C. Fiberglass Blanket: Unfaced. Thermal conductivity shall not exceed 0.25 Btu-in/hr-ft2-F at a mean temperature of 50F. 1-1/2" thickness. Knauf, Johns-Manville, Owens-Corning.

D. PVC Jacket (for pipe, fittings and valves): Pre-molded polyvinyl chloride (PVC) jackets, 0.020" thickness. Size to match application. Provide solvent weld adhesive and PVC vapor barrier pressure sealing tape by same manufacturer. Zeston.

E. Stretchable Glass Fabric: Reinforcing mesh. 10 X 20 continuous filament glass yarns per inch. Johns-Manville.

F. Vapor Barrier Coating: Childers CP-30, Foster 30-25.

G. Lagging Adhesive: Childers CP-50A, Foster 30-36.

H. Aluminum Jacketing: Aluminum pipe and fitting jacketing. 0.016" thickness for straight pipe. 0.024" thickness for fittings. Stucco-embossed finish. Integral moisture barrier. Provide pre-fabricated aluminum strapping and seals by same manufacturer. Childers.

I. Outdoor Mastic: Childers CP-10, Foster 65-05.

J. Insulating Tape: Ground virgin cork and synthetic elastomeric. Black, odorless, and non-toxic. K factor 0.43 Btu-in/hr-ft2-F or less. Non-shrinking. For outdoor use, provide protective finish by same manufacturer. Halstead.

K. Molded Closed Cell Vinyl (Piping Insulation Under Lavatories and Sinks): Fully molded closed cell vinyl, 1/8" thick, minimum. Thermal conductivity shall not exceed 1.17 BTU-in/hr-ft2-ºF at an average temperature of 73ºF. Weep hole in cleanout nut enclosure. Hinged cap over valve to allow access for servicing. Out of sight nylon fastening system and internal ribs on drain insulation to provide air gap (Lav-Guard Only). Truebro Lav-guard, McGuire Pro Wrap, Plumberex.

2.3 FIXTURES:

A. General: Provide rough-in for and install all plumbing fixtures shown on drawings. Except in equipment rooms, all trim, valves and piping not concealed in wall structure, above ceiling or below floors, shall be brass with polished chrome plate finish, unless noted otherwise. All enameled fixtures shall be acid resisting. Standard color is white unless otherwise noted.

B. Schedule: Refer to Plumbing Fixture Schedule on the drawings for list of fixtures and trim. Manufacturer's model numbers are listed to complete description. Equivalent models of American Standard, Eljer, Elkay, Haws, Just, Kohler, T&S Brass, Willoughby or Zurn are acceptable. For drainage fixtures, equivalent models of Josam, Mifab, Smith, Wade or Zurn are acceptable.

C. Stops and P-Traps: All fixtures shall be provided with stops and P-Traps as applicable. Wall mounted faucets, valves, etc. shall have integral stops or wall mounted stops.
1. Stops: All hot and cold water supplies shall be 1/2" FIP inlet ¼ turn ball angle stops with loose key, lock shield, and chrome plated copper riser (3/8" for 2-1/2 gpm and less, otherwise 1/2"). BrassCraft, Dahl, McGuire.
2. P-Traps: Semi-cast brass, ground joint. 17-gage. Clean-out plug. Unobstructed waterway. California Tubular, McGuire.

D. Caulking: Caulk fixtures with white G.E. "Sanitary SCS1700", mildew resistant silicone sealant with EPA listed anti-microbial.

2.4 EQUIPMENT:

A. General Requirements:
1. Capacity: Capacities shall be in accordance with schedules shown on drawings. Capacities are to be considered minimum.
2. Dimensions: Equipment must conform to space requirements and limitations as indicated on drawings and as required for operation and maintenance. Equipment will not be accepted that does not readily conform to space conditions. Prepare and submit layout drawings for all proposed equipment (different than scheduled units) showing actual job conditions, required clearances for proper operation, maintenance, etc.
3. Ratings - Electrical: Electrical equipment shall be in accordance with NEMA standards and UL or ETL listed where applicable standards have been established.
4. Piping: Each item or assembly of items shall be furnished completely piped for connection to services. Control valves and devices shall be provided. Equipment requiring domestic water for non potable use shall be provided with backflow preventer acceptable for intended use by local governing authorities.
5. Electrical:
a. General: Each item or assembly of items shall be furnished completely wired to individual terminal blocks for connection to single branch electrical circuit. All electrical accessories and controls required by equipment shall be furnished. Provide terminal blocks for controls and interlocks not included in equipment package. Controllers and other devices shall be in NEMA 1 or 3R enclosures as applicable.
b. Wiring: Conductors, conduit, and wiring shall be in accordance with Electrical Specifications. Individual items within assembly shall be separately protected with dead front, fused disconnect, fuse block, or circuit breaker for each ungrounded conductor, all accessible on operating side of equipment. Switches, contacts and other devices shall be in ungrounded conductors.
c. Control Voltage: Equipment connected to greater than 240 volts shall be provided with 120 volt control circuit from integral protected transformer if separate source is not indicated on plans. 240 volt control is acceptable if confined within control panel.
d. Submittals: Included in shop drawings shall be internal wiring diagrams and manufacturer's recommended external wiring.

B. Water Heater: Electric. Glass lined tank with magnesium anode protection. 150 psi working pressure. Fully insulated. Automatic temperature control. High limit control. Provide ASME rated temperature and pressure relief valve sized in accordance with energy input, dielectric couplings and drain cock. UL listed. A.O. Smith, American Appliance, Bradford White, State Industries..

PART 3: - EXECUTION

3.1 PIPING INSTALLATION:

A. General:

1. Piping Layout: Piping shall be concealed in walls, above the ceilings, or below grade unless otherwise noted. Exposed piping shall run parallel to room surfaces; location to be approved by Architect. No structural member shall be weakened by cutting, notching, boring or otherwise, unless specifically allowed by structural drawings and/or specifications. Where such cutting is required, reinforcement shall be provided as specified or detailed. All piping shall be installed in a manner to ensure unrestricted flow, eliminate air pockets, prevent any unusual noise, and permit complete drainage of the system. All piping shall be installed to permit expansion and contraction without strain on piping or equipment. Vertical lines shall be installed to allow for building settlement without damage to piping. Pipe sizes indicated on the drawings are nominal sizes unless otherwise noted.
2. Joints:
   a. Threaded: Pipe shall be cut square and reamed to full size. Threads shall be in accordance with ANSI B2.1. Joint compound or tape suitable for conveyed fluid shall be applied to male thread only. Joints shall be made with three threads exposed.
   b. Brazed: Filler rod shall be of suitable or the same alloy as pipe. Brazing filler metal shall have a minimum melting point of 1100F. Brazing shall be performed by a Certified Brazer as certified by an organization/institution that uses standards recognized by the American Welding Society (AWS) and meets the requirements of the ASME Boiler and Pressure Vessels Code, Section 9.
   c. Open Ends: Open ends of piping shall be capped during progress of work to preclude foreign matter.
   d. Electrical Equipment: Piping shall not be run over electrical panels, motor control centers or switchboards.
3. Fittings and Valves:
   a. Standard Fittings: All joints and changes in direction shall be made with standard fittings. Close nipples shall not be used.
   b. Reducers: Pipe size reduction shall be made with bell reducer fittings. Bushings shall not be used.
   c. Unions: A union shall be installed on the leaving side of each valve, at all sides of automatic valves, at equipment connections, and elsewhere as necessary for assembly or disassembly of piping.
   d. Valves: All valves shall be full line size. Provide shut-off valve for each building and each equipment connection. Provide shut-off valve at each point of connection to existing piping. At equipment connections, valves shall be full size of upstream piping.
   e. Valve Accessibility: All valves shall be located so that they are easily accessible. Valves located above ceilings shall be installed within 24" of the ceiling. For situations where this is not practical or where valves are greater than 10' above the floor, chain wheel operators shall be provided. Chain shall extend down to 7' above the floor. All such installations must have prior review by the Engineer.
4. Pipe Support:
   a. General: Hangers shall be placed to support piping without strain on joints or fittings. Maximum spacing between supports shall be as specified below. Actual spacing requirements will depend on structural system. Side beam clamps shall be provided with retaining straps to secure the clamp to the opposite side of the beam. Vertical piping shall be supported with riser clamp at 20' on center (maximum). Support pipe within 12" of all changes in direction. Support individual pipes with pipe hanger. Copper piping systems which protrude through a surface for connection to a fixture stop or other outlet shall be

secured with a drop ell, Nibco 707-3-5, to a Holdrite Model #SB1 bracket; nipple through surface shall be threaded brass.

(1) Pressure Pipe:

Pipe Size (Inches)	Maximum Spacing* Between Supports (ft.)	
	Copper	Sch. 40 steel
1/2	6	6
3/4	6	8
1	6	8
1-1/4	6	10
1-1/2	6	10
2	10	10
2-1/2	10	10
3	10	10
4	10	10
6	10	10

*Based on straight lengths of pipe with couplings only. Provide additional supports for equipment, valves or other fittings. Seismic requirements may reduce maximum spacing.

(2) Gravity Drain Pipe: Piping shall be supported at each length of pipe or fitting, but in no case at greater spacing than indicated above for pressure pipe.

b. Cold Water Piping: All hot and cold water piping shall have isolating shield; no portion of this piping shall touch the structure without an isolating shield except at anchor points for fixture rough-in.

c. Trapeze: Trapeze hangers of construction channel and pipe clamps may be used. Submit design to Engineer for review.

5. Miscellaneous:

a. Escutcheons: Provide chrome plated metal escutcheons where piping penetrates walls, ceilings, or floors in finished areas.

b. Pipe Sleeves: All piping passing through concrete shall be provided with pipe sleeves. Allow 1" annular clearance between sleeve and pipe for piping 3" and smaller, otherwise 2" annular clearance.

c. Pipes Passing through Fire Rated Surfaces: Pipes passing through fire rated walls, floors, ceilings, partitions, etc. shall have the annular space surrounding the pipe or pipe insulation sealed with fire rated materials in accordance with the requirements of 2025 CBC Section 714.

d. Dielectric Couplings: Dielectric couplings shall be installed wherever piping of dissimilar metals are joined, except that bronze valves may be installed in ferrous piping without dielectric couplings.

e. Concrete Thrust Blocks: Shall be constructed at all valves, tees, elbows, bends, crosses, reducers and dead ends in loose-joint pipe. Blocks shall cure a minimum of 7 days before pressure is applied. Concrete shall be 3000 psi mix.

B. Sanitary Sewer Piping:

1. General: Where inverts are not indicated, sanitary sewer piping shall be installed at 1/4" per foot pitch. Piping 4" and larger may be installed at 1/8" per foot pitch where structural or other limitations prevent installation at a greater pitch. Bell and spigot piping shall be installed with barrel on sand bed; excavate hole for bell.

2. Cleanouts: Install cleanouts at ends of lines, at changes of direction greater than 45 degrees, and at not greater than 100 foot intervals. Locate interior cleanouts in accessible locations and bring flush to finished surface.

3. Vents: Vents shall terminate not less than 6" above the roof nor less than 12" from any vertical surface nor within 10' of any outside air intake. Install horizontal vent lines at 1/4" per foot pitch. Offset vents 2' minimum from gutters, parapets, ridges and roof flashing.

C. Water Piping: Connections to branches and risers shall be made from top of main. Supply header in fixture battery shall be full size to last fixture, reducing in size only on individual connections to each fixture in battery. Minimum pipe size shall be 1/2", unless otherwise noted. Exposed fixture stops and flush valves shall be installed with brass nipples for copper piping and galvanized nipples for galvanized piping. Nipples are to extend from outside of wall to fitting at header or drop behind finish wall surfaces. Pipe nipples shall be same size as stop or flush valve. Provide shut off for each building and each connection to equipment. Shock absorbers shall be installed in a vertical position as indicated on drawings. Only equipment mounted on vibration isolators shall be connected with flexible connections. Underground hot water and cold water piping which run parallel to each other shall be installed a minimum of 3 feet apart. The manufacturer of the pre-insulated underground hot water piping system shall instruct the installer regarding the manufacturer's required installation procedures. The manufacturer shall also provide sufficient job site inspection to ensure that the work is being accomplished in accordance with the plans, specifications and manufacturer's requirements. Upon completion of the installation, a certificate shall be furnished to the Architect by the manufacturer of the system, certifying the installation was made in accordance with his requirements and in compliance with the plans and specifications.

D. Drain Piping (Including Condensate): Install with constant pitch to receptacle, 1/4" per foot where possible, otherwise 1/8" per foot minimum. Provide TEE with clean-out plug at all changes of direction. Provide trap at each air handling unit to prevent air leakage. Only equipment mounted on vibration isolators shall be connected with flexible connection. Piping not concealed in wall structure, above ceilings or below floors shall be chrome plated brass, except in equipment rooms, piping shall be galvanized steel. P&T relief and water heater drain piping shall be galvanized steel. Provide secondary drain piping where required.

E. Plastic Piping: Shall be cut square and assembled prior to solvent weld. Apply primer per manufacturer's recommendations. Coat male joint fully with solvent, make joint before solvent dries and wipe exterior clean.

F. Draft Hydrant Piping: Installation shall comply with NFPA#13, NFPA #24 and NFPA #1142. Plastic piping shall have 14-gage insulated tracer wire secured to pipe at 10' intervals with nylon ties. Terminate tracer 6" above grade at both ends. Depth of cover in traffic areas shall be 36 inches (minimum).

3.2 PIPING INSULATION INSTALLATION:

A. Domestic Hot Water:
1. General: All domestic hot water piping, fittings and accessories shall be insulated.
2. Pipe: Apply pre-molded fiberglass sections to pipe using integral pressure sealing lap adhesive in accordance with manufacturer's recommendations. Stagger longitudinal joints. Seal butt joints with factory supplied pressure sealing tape.
3. Fittings and Valves:
   a. Wrap all fittings and valves with pre-cut fiberglass blanket to thickness matching adjoining insulation. Cover blanket with PVC jacket in accordance with manufacturer's recommendations. Solvent weld. Seal all joints with factory supplied pressure sealing vapor barrier tape with 1-1/2" (min.) overlap on both sides of joint. Insulate valves to stem. Do not insulate unions, flanges or valves unless water temperature exceeds 140F or the piping is exposed to weather.
   b. For miscellaneous fittings and accessories for which PVC jackets are not available or where proximity of fittings precludes a neat-appearing installation, the Contractor may cover the fiberglass blanket with stretchable glass fabric, one coat of lagging adhesive and a final coat of vapor barrier coating. All exposed ends of insulation shall be adequately sealed.
4. Additional Finish for Exposed Piping and Equipment: All piping and equipment exposed to view but protected from the weather shall be given an additional finish of PVC jackets.

B. Cold Water Piping-Freeze Protection: All cold water piping exposed to weather or other areas subject to freezing (i.e. ventilated attics, uninsulated exterior soffits, etc.) shall be insulated same as hot water piping. Cover with aluminum jacketing where exposed to weather. Short lengths of pipe and valves may be wrapped with insulating tape, 50% overlap. Cover valves to stem. Apply at least two coats of protective finish where exposed to weather.

C. Piping Insulation Under Lavatories and Sinks: Exposed water piping, water stops and drain piping under lavatories and sinks shall be insulated with 1/8" thick molded closed cell vinyl. Installation shall be in accordance with manufacturer's instructions.

3.3 FIXTURE INSTALLATION:

A. Fixture Height: Shall be as indicated on Architectural drawings.

B. Floor Drains or Floor Sinks: Shall be placed parallel to room surfaces, set level, flush with floor, and adjusted to proper height to drain. Cover openings during construction to keep all foreign matter out of drain line.

C. Wall Hung Fixtures: Shall be provided with proper backing and hanger plates secured to wall. Fixtures mounted on carriers shall bear against stop nuts, clear of wall surface. Caulk fixtures against walls with white G.E. "Sanitary SCS1700" silicone sealant. Caulking shall be smooth and flush with fixture surface (not concave).

D. Floor Mounted Fixtures: Shall be provided with proper support plates. Caulk floor mounted fixtures with white G.E. "Sanitary SCS1700" silicone sealant. Caulking shall be smooth and flush with fixture surface (not concave).

E. Other Connections: Rough-in and connection for trim or fixtures supplied by others shall be included in this specification section.

3.4 EQUIPMENT INSTALLATION:

A. General: It shall be the responsibility of the equipment installer to insure that no work done under other specification sections shall in any way block, or otherwise hinder the equipment. All equipment shall be securely anchored in place.

B. Connections to Equipment: Where size changes are required for connections to equipment, they shall be made immediately adjacent to the equipment and, if possible, inside the equipment cabinet.

3.5 TESTS AND ADJUSTMENTS:

A. General: Unless otherwise directed, tests shall be witnessed by a representative of the Architect. Work to be concealed shall not be enclosed until prescribed tests are made. Should any work be enclosed before such tests, the Contractor shall, at his expense, uncover, test and repair all work to original conditions. Leaks and defects shown by tests shall be repaired and entire work retested. Tests may be made in sections, however, all connections between sections previously tested and new section shall be included in the new test.

B. Gravity Systems:
1. Sanitary Sewer: All ends of the sanitary sewer system shall be capped and lines filled with water to the top of the highest vent, 10' above grade minimum. This test shall be made before any fixtures are installed. Test shall be maintained until all joints have been inspected, but no less than 2 hours.
2. Drains (Including Condensate): Similar to Sanitary Sewer.

C. Pressure Systems:

1. General: There shall be no drop in pressure during test except that due to ambient temperature changes. All components of system not rated for test pressure shall be isolated from system before test is made.
2. Domestic Water Piping: Maintain 100 psig water pressure for 4 hours.
3. Draft Hydrant Piping: Shall be tested per NFPA #13, NFPA #14, NFPA #1142 and Tulare County Fire Department requirements.

3.6 DISINFECTION:

A. Disinfect all domestic water piping in accordance with 2025 CPC Section 609.10, and in accordance with administrative authority. Disinfection process shall be performed in cooperation with health department having jurisdiction and witnessed by a representative of the Architect. During procedure signs shall be posted at each water outlet stating, "Chlorination Do Not Drink". After disinfection, one set of water samples shall be collected by Contractor for bacteriological analysis in presence of Inspector. If the water fails the bacteriological test, Contractor shall disinfect the piping again and pay for any retesting required, at no additional cost to owner. Bacteriological testing results shall be obtained by Contractor and delivered to the Owner through the Architect before project completion. Contractor shall include copy of Bacteriological Test Results at closeout with operation and maintenance manuals.

END OF SECTION

SECTION 23 0000 - GENERAL MECHANICAL PROVISIONS

PART 1: - GENERAL

1.1 GENERAL CONDITIONS:

A. The preceding General and Special Conditions and Divisions 00 and 01 requirements shall form a part of this Section with the same force and effect as though repeated here. The provisions of this Section shall apply to all of the Sections of Divisions 22 and 23 of these Specifications and shall be considered a part of these sections.

1.2 CODES AND REGULATIONS:

A. All work and materials shall be in full accordance with current rules and regulations of all applicable codes. Nothing in these Drawings or Specifications is to be construed to permit work not conforming to these codes. Should the Drawings or Specifications call for material or methods of construction of a higher quality or standard than required by these codes, the Drawings and Specifications shall govern. Applicable codes and regulations include, but are not necessarily limited to, the following:

1. California Code of Regulations (CCR):
    a. Title 8, Industrial Relations
    b. Title 24, Part 1, Administrative Regulations, 2025 Edition.
    c. Title 24, Part 6, California Energy Code, 2025 Edition
    d. Title 24, Part 11, California Green Building Code, 2025 Edition
2. California Building Code - CBC - 2025
3. California Mechanical Code - CMC - 2025
4. California Plumbing Code - CPC - 2025
5. California Fire Code - CFC - 2025
6. California Electrical Code - CEC - 2025
7. Air Diffusion Council - ADC
8. American Gas Association - AGA
9. Air Movement and Control Association - AMCA
10. American National Standards Institute - ANSI
11. Air Conditioning and Refrigeration Institute - ARI
12. American Society of Heating, Refrigerating, and Air Conditioning Engineers - ASHRAE
13. American Society of Mechanical Engineers - ASME
14. American Society for Testing and Materials - ASTM
15. American Water Works Association - AWWA
16. Cast Iron Soil Pipe Institute - CISPI
17. National Electrical Manufacturers Association - NEMA
18. National Fire Protection Association - NFPA
19. National Sanitation Foundation - NSF
20. Occupational Safety and Health Act - OSHA
21. Plumbing and Drainage Institute - PDI
22. Sheet Metal and Air Conditioning Contractors National Association - SMACNA
23. Underwriters' Laboratory - UL

1.3 PERMITS AND FEES:

A. The Contractor shall take out all permits and arrange for all tests in connection with his work as required by Section 01 1100. All charges shall be included in the work.

1.4 COORDINATION OF WORK:

A. Layout of materials, equipment and systems is generally diagrammatic unless specifically dimensioned. Some work may be shown offset for clarity. The actual locations of all materials, piping, ductwork, fixtures, equipment, supports, etc. shall be carefully planned prior to installation of any work in order to avoid all interference with each other, or with structural, electrical, architectural or other elements. Verify the proper voltage and phase of all equipment with the electrical plans. If discrepancies are discovered between drawing and specification requirements, the more stringent requirement shall apply. All conflicts shall be called to the attention of the Architect and the Engineer prior to the installation of any work or the ordering of any equipment. No work shall be prefabricated or installed prior to this coordination. No costs will be allowed to the Contractor for any prefabrication or installation performed prior to this coordination.

B. Mandatory Coordination and Shop Drawings:

1. Prepare or have prepared high level detailed Shop Drawings in plan view, with cross-sections as necessary, indicating the proposed installation plan for all HVAC, mechanical, fire sprinkler, and plumbing installations for the project. These Drawings should depict actual elevations and linear dimensions, as well as all routing changes, transitions, major offsets, deck and structural attachments deemed necessary to accomplish the installation. Individual Shop Drawings may be prepared for each trade working within the designated space or area; however, the coordination of the consolidated installation shall remain the responsibility of the Contractor. These Shop Drawings shall be provided to each Subcontractor having Work in each area for coordination. Any fittings, offsets or other changes due to coordination shall be at no additional cost to Owner.
2. Whereas 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 and/or piping 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.
3. 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 conditions affecting all the Work and shall arrange such Work accordingly, furnishing such fittings, equipment, valves, accessories, offsets, etc., as may be required, regardless of size or cost, to meet such conditions, at no additional cost to the Owner.
4. Coordination changes are not design changes and shall be provided at no additional cost to Owner. Any guidance, drawing or clarification issued by the Architect or Engineer to assist the Contractor or their sub-contractors in their coordination during construction are not design changes and shall be provided at no additional cost to Owner.
5. Resolve differences or disputes between subcontractors and materials suppliers concerning coordination, interference, or extent of work between sections. The Contractor's decisions, if consistent with the Contract Documents, shall be final. The Architect and their Consultants are not required to coordinate work between sections and will not do so. Any changes required that affect the design intent shall be presented to and approved by the Architect and Engineer of Record.
6. The coordinated Shop Drawings must be signed off by HVAC, Plumbing, Fire Sprinkler, Electrical, Framing, Ceiling Installation, and Data and Low Voltage Subcontractors.
7. The signed off Shop Drawings shall be submitted to the Owner's Representative for review and approval prior to commencement of installation.
8. Provide reviewed Shop Drawings to each Subcontractor having Work in each area.

1.5 GUARANTEE:

A. 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 through the Architect. Equipment that is started and operated prior to acceptance shall have the guarantee extended to cover that period. Owner guarantee shall start at acceptance.

1.6 QUIETNESS:

A. Piping, ductwork and equipment shall be arranged and supported so that vibration is a minimum and is not transmitted to the structure.

1.7 DAMAGES BY LEAKS:

A. The Contractor shall be responsible for damages caused by leaks in the temporary or permanent piping systems prior to completion of work and during the period of the guarantee, and for damages caused by disconnected pipes or fittings, and the overflow of equipment prior to completion of the work.

1.8 EXAMINATION OF SITE:

A. The Contractor shall examine the site, compare it with Plans and Specifications, and shall have satisfied himself as to the conditions under which the work is to be performed. No allowance shall subsequently be made in his behalf for any extra expense to which he may be put due to failure or neglect on his part to make such an examination.

1.9 COMPATIBILITY WITH EXISTING SYSTEMS:

A. Any work which is done as an addition, expansion or remodel of an existing system shall be compatible with that system.

1.10 MATERIALS AND EQUIPMENT:

A. Materials and equipment shall be new unless otherwise noted. Materials and equipment of a given type shall be by the same manufacturer. Materials and equipment shall be free of dents, scratches, marks, shipping tags and all defacing features at time of project acceptance. Materials and equipment shall be covered or otherwise protected during construction as required to maintain the material and equipment in new factory condition until project acceptance.

1.11 SUBMITTALS:

A. Shop Drawings: Within 30 days of contract award, the Contractor shall submit six copies of shop drawings for all materials, equipment, etc. proposed for use on this project (this includes deferred approval items). Material or equipment shall not be ordered or installed until written review is processed by the Engineer. Any item omitted from the submittal shall be provided as specified without substitution.
All shop drawings must comply with the following:
1. Shop drawings are required for all material and equipment items and shall include manufacturer's name and catalog numbers, dimensions, capacities, performance curves, and all other characteristics and accessories as listed in the specifications or on the drawings. Descriptive literature shall be current factory brochures and submittal sheets. Capacities shall be certified by the factory. FAX submittals are not acceptable.
2. All shop drawings shall be submitted at one time in a neat and orderly fashion in a suitable binder with title sheet including Project, Engineer and Contractor, table of contents, and indexed tabs dividing each group of materials or item of equipment. All items shall be identified by the

specification paragraph number for which they are proposed. All equipment shall also be identified by the mark number as indicated on drawings.

3. All capacities, characteristics, and accessories called for in the specifications or on the drawings shall be high-lighted, arrowed, circled or underlined on the shop drawings. Calculations and other detailed data indicating how the item was selected shall be included for items that are not scheduled. Data must be complete enough to permit detailed comparison of every significant characteristic which is specified, scheduled or detailed.
4. Electronic Submittals: Where allowed by Division 01, electronic submittals are acceptable providing the following requirements are met. Electronic submittals which do not comply with these requirements will be rejected.
    a. Submittal shall be a single file in PDF format, with bookmarks for table of contents and each tab, and sub-bookmarks for each item.
    b. All text shall be searchable (except text that is part of a graphic).
    c. Submittal shall include all items noted in 1 through 3 above, except a binder is not required.
    d. Electronic submittals shall be processed through normal channels. Do not submit directly to the Engineer unless the Engineer is the prime consultant for the project.
    e. Contractor shall provide Owner and Owner’s Representative with hard copies of the final submittal. Coordinate exact number required with Owner through Architect/Engineer.

B. Substitutions: Manufacturers and model numbers listed in the specifications or on the drawings represent the standard of quality and features desired (where equipment is scheduled on the drawings, any equipment submitted other than scheduled equipment is considered a substitution). Unless otherwise noted, alternate manufacturers may be submitted for review by the Engineer. Calculations and other detailed data indicating how the item was selected shall be included. The Contractor shall assume full responsibility that substituted items or procedures will meet the specifications and job requirements and shall be responsible for the cost of redesign and modifications to the work caused by these items. At the Engineer's request, furnish locations where equipment similar to the substituted equipment is installed and operating along with the user's phone numbers and contact person. Satisfactory operation and service history will be considered in the acceptance or rejection of the proposed substitution.

C. Review: Submittals will be reviewed for general conformance with the design concept, but this review does not guarantee quantity shown, nor does it supersede the responsibility of the Contractor to provide all materials, equipment and installation in accordance with the drawings and specifications. The Contractor shall agree that shop drawing submittals processed by the Engineer are not Change Orders; that the purpose of shop drawing submittals by the Contractor is to demonstrate to the Engineer that the Contractor understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use. The Contractor shall agree that if deviations, discrepancies or conflicts between shop drawings and design drawings and specifications are discovered either prior to or after shop drawing submittals are processed by the Engineer, the design drawings and specifications shall control and shall be followed. If a resubmittal is required, submit a complete copy of the Engineer's review letter requiring such with the resubmittal.

1.12 MANUFACTURER'S RECOMMENDATIONS:

A. All material, equipment, devices, etc., shall be installed in accordance with the recommendations of the manufacturer of the particular item. The Contractor shall be responsible for all installations contrary to the manufacturer's recommendations. The Contractor shall make all necessary changes and revisions to achieve such compliance. Manufacturer's installation instructions shall be delivered to and maintained at the job site through the construction of the project.

1.13 SCHEDULING OF WORK:

A. All work shall be scheduled subject to the review of the Architect, Engineer and the Owner. No work shall interfere with the operation of the existing facilities on or adjacent to the site. The Contractor shall have at all times, as conditions permit, a sufficient force of workmen and quantity of materials to install the work contracted for as rapidly as possible consistent with good work, and shall cause no delay to other Contractors engaged upon this project or to the Owner.

1.14 OPENINGS, CUTTING AND PATCHING:

A. The locations and dimensions for openings through walls, floors, ceilings, foundations, footings, etc. required to accomplish the work under this Specification Division shall be provided under this Division. Except as noted below, the actual openings and the required cutting and patching shall be provided by other Divisions. Coring through existing concrete or masonry walls, floors, ceilings, foundations, footings, etc., and saw cutting of concrete floors or asphaltic concrete required to accomplish the work under this Specification Division shall be provided under this Division. Patching of these surfaces shall be provided by other Divisions. Cutting or coring shall not impair the strength of the structure. Any damage resulting from this work shall be repaired at the Contractor's expense to the satisfaction of the Architect.

1.15 EXCAVATION AND BACKFILL:

A. General: Barrel of pipe shall have uniform support on sand bed. Sand shall be free from clay or organic material, suitable for the purpose intended and shall be of such size that 90 percent to 100 percent will pass a No. 4 sieve and not more than 5 percent will pass a No. 200 sieve. Unless otherwise noted, minimum earth cover above top of pipe or tubing outside building walls shall be 24", not including base and paving in paved areas.

B. Excavation: Width of trenches at top of pipe shall be minimum of 16", plus the outside diameter of the pipe. Provide all shoring required by site conditions. Where over excavation occurs, provide compacted sand backfill to pipe bottom. Where groundwater is encountered, remove to keep excavation dry, using well points and pumps as required.

C. Backfill:
1. 6" Below, Around, and to 12" Above Pipe: Material shall be sand. Place carefully around and on top of pipe, taking care not to disturb piping, consolidate with vibrator. Native soil may be used where allowed by Geotechnical (Soils) Report. Where native soil is used, trenching for gravity drain pipe shall be done using a laser-level and trencher.
2. One Foot Above Pipe to Grade: Material shall be sandy or silty loam, free of lumps, laid in 6" layers, uniformly mixed to proper moisture and compacted to required density. If backfill is determined to be suitable and required compaction is demonstrated by laboratory test, water compaction in 6" layers may be used, subject to review by Engineer.

D. Compaction: Compact to density of 95% within building and under walkways, driveways, traffic areas, paved areas, etc. and to 90% elsewhere. Demonstrate proper compaction by testing at top, bottom and one-half of the trench depth. Perform these tests at three locations per 100' of trench.

1.16 PROTECTIVE COATING FOR UNDERGROUND PIPING:

A. All ferrous pipe below grade (except cast iron) shall have a factory applied protective coating of extruded high density polyethylene, 35 to 70 mils total thickness, X-Tru-Coat, Scotchkote. All fittings and areas of damaged coating shall be covered with two layer double wrap of 10 mil polyvinyl tape to total thickness of 40 mils. Johns-Manville. Protective coating shall be extended 6" above surrounding grade.

1.17 ACCESS DOORS:

A. Provide access doors as required where equipment, piping, valves, ductwork, etc. are not otherwise accessible. Access doors shall match the wall or ceiling finish and fire rating as indicated on the Architectural drawings. 16-gage steel frame and 14-gage steel door with paintable finish, except in ceramic tile, where door shall be 16-gage stainless steel with satin finish. Continuous hinge. Key and cylinder lock (except quick-opening type for Emergency Gas Shutoff Valve). Deliver doors to the General Contractor for installation. Milcor. Unless otherwise noted, the minimum sizes shall be as follows:

1 valve up to 1-1/2"	12" x 12"
1 valve up to 3"	16" x 16"

1.18 CONCRETE ANCHORS:

A. Steel bolt with expansion anchor requiring a drilled hole - powder driven anchors, adhesive anchors and concrete screws are not acceptable. Re-use of screw anchor holes shall not be permitted. Minimum concrete embedment shall be 4-1/2 diameters. Minimum spacing shall be 12 diameters center to center and 6 diameters center to edge of concrete. Post-installed anchors in concrete used for component anchorage shall be pre-qualified for seismic application in accordance with ACI 355.2 and ICC-ES AC193. Post-installed anchors in masonry used for component anchorage shall be pre-qualified for seismic applications in accordance with ICC-ES AC01. Maximum allowable loads for tension and shear shall be as determined by Calculation in compliance with ACI 318-19, Chapter 17, and the anchor's ICC or IAPMO evaluation report. Hilti, Powers, Red Head.

1.19 EQUIPMENT ANCHORING:

A. All equipment shall be securely anchored in accordance with ASCE 07-22, Chapter 13, as amended by CBC Section 1617A.1. All equipment mounted on concrete shall be secured with a concrete anchor as specified above at each mounting point.

1.20 SUPPORTS AND SEISMIC RESTRAINTS:

A. All mechanical systems (equipment, ductwork, piping, etc.) shall be provided with supports and seismic restraints in accordance with ASCE 07-22, Chapter 13, as amended by CBC Section 1617A.1. Brace spacing shall be reduced by 50% for cast iron, plastic, no-hub, or other non-ductile piping. A copy of this manual shall be kept on site at all times during construction.

1.21 ASBESTOS CONTAINING MATERIALS AND ASBESTOS REMOVAL:

A. No materials or material coatings containing asbestos shall be allowed on this project.

1.22 SYSTEM IDENTIFICATION:

A. Below Grade Piping: Bury a continuous, pre-printed, bright-colored, metallic ribbon marker capable of being located with a metal detector with each underground pipe. Locate directly over buried pipe, 6" to 8" below finished grade.

B. Equipment: All equipment shall be identified with a plastic laminated, engraved nameplate which bears the unit mark number as indicated on the drawings (e.g. AC-4) and identifies the area or space served by the equipment. Provide 1/2" high lettering - white on black background. Nameplates shall be permanently secured to the exterior of the unit.

1.23 CLEANING:

A. Progressively and at completion of the job, the Contractor shall thoroughly clean all of his work, removing all debris, stain and marks resulting from his work. This includes but is not limited to building surfaces, piping, equipment and ductwork, inside and out. Surfaces shall be free of dirt, grease, labels, tags, tape, rust, and all foreign material.

B. At the end of each work day, the Contractor shall cover all open ends of piping and ductwork with protective plastic.

1.24 ACCEPTANCE TESTING:

A. All acceptance testing as required by California Code of Regulations, Title 24, and as noted on the Certificate of Compliance form, (where applicable), shall be performed and documented by an Acceptance Test Technician (ATT). These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). The Contractor shall submit a copy of the documentation to the Engineer for review (hardcopy or electronic), prior to submitting to Administrative Authority.

1.25 OPERATION AND MAINTENANCE INSTRUCTIONS:

A. Printed: Three copies of Operation and Maintenance Instructions and Wiring Diagrams for all equipment and parts list for all faucets, trim, valves, etc. shall be submitted to the Engineer. All instructions shall be clearly identified by marking them with the same designation as the equipment item to which they apply (e.g. AC-3). All Wiring Diagrams shall agree with reviewed Shop Drawings and indicate the exact field installation. All instructions shall be submitted at the same time and shall be bound in a suitable binder with tabs dividing each type of equipment (e.g. Pumps, Fans, Motors, etc.). Each binder shall be labeled indicating "Operating and Maintenance Instructions, Project Title, Contractor, Date" and shall have a Table of Contents listing all items included. Electronic O & M’s shall comply with the Electronic submittal requirements in this Section.

B. Verbal: The Contractor shall verbally instruct the Owner's maintenance staff in the operation and maintenance of all equipment and systems. The controls contractor shall present that portion of the instructions that apply to the control system. The Engineer's office shall be notified 48 hours prior to this meeting.

1.26 RECORD DRAWINGS:

A. The Contractor shall obtain one set of blue line prints for the project, upon which a record of all construction changes shall be made. As the work progresses, the Contractor shall maintain a record of all deviations in the work from that indicated on the drawings. Final location of all underground work shall be recorded by depth from finished grade and by offset distance from permanent surface structures, i.e. building, curbs, walks. In addition, the water, gas, sewer, underfloor duct, etc. within the building shall be recorded by offset distances from building walls. As part of the Contractor’s overhead expense, request a full set of reproducible drawings to transfer the changes, notations, etc. from the marked-up prints to the reproducible drawings. The record drawings (marked-up prints and reproducibles) shall be submitted to the Engineer for review.

PART 2: - PRODUCTS (not used)

PART 3: - EXECUTION (not used)

END OF SECTION

SECTION 23 0001 - HEATING, VENTILATING AND AIR CONDITIONING

PART 1: - GENERAL

1.1 GENERAL MECHANICAL PROVISIONS:

A. The General Mechanical Provisions, Section 23 0000, shall form a part of this Section with the same force and effect as though repeated here.

1.2 SCOPE:

A. 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:
1. Air distribution system.
2. All equipment as shown or noted on the drawings or as specified. Furnish motor starters except where motor control centers are used. Coordinate with Division 26.
3. System energy balance.
4. Temperature control system.
5. Demolition as indicated on drawings. Where demolition is called for, remove all equipment, piping, ductwork, braces, supports, housekeeping pads, temperature controls and related items no longer required.

B. Work Specified Elsewhere:
1. Line voltage power wiring, disconnect switches and installation of all starters are included in the Electrical Section, unless otherwise noted.
2. Connection of condensate drains to equipment.
3. Concrete and reinforcing steel unless specifically called for in the drawings or specifications.
4. Painting unless specifically called for in the drawings or specifications.
5. Carpentry.

PART 2: - PRODUCTS

2.1 DUCTWORK MATERIALS:

A. General: All ductwork materials shall have fire and smoke hazard ratings as tested under ASTM E-84 and UL 723 not exceeding a flame spread of 25 and smoke developed of 50. Shall comply with 2025 CMC.

B. Metal Ductwork: Metal ductwork shall be galvanized sheet steel, lock forming quality, ASTM A-653, with gage and construction to match SMACNA Standard for pressure required (26 gage minimum).

C. Duct Sealants: All Joints Exposed to Weather: Sealant shall be water based, Foster 32-19/32-17, Childers CP-146/148, United Duct Sealer WB or G.E. “SilPruf” SCS2000 silicone sealant. Joints Not Exposed to Weather (Except Spiral Wound Exposed to View in Finished Areas): Fiber reinforced. White in color. Foster 32-17, Childers CP-148, Design Polymerics DP1030, Hardcast Versa-Grip 181, Hardcast CCWI-181. Spiral Wound Joints Not Exposed to Weather and Exposed to View in Finished Areas: Non fibrated. Gray in color. Foster 32-19, Childers CP-146, Design Polymerics DP 1010, or United Duct Sealer WB.

2.2 AIR TERMINALS AND DUCT FITTINGS:

A. Grilles: (Grilles, Registers, Diffusers and Louvers)

1. Information on Drawings: Refer to Grille Schedule on the drawings for the list of grilles. Manufacturer's model numbers are listed to complete the description Titus. Equivalent models of Anemostat or Krueger are acceptable. Refer to the floor plans for neck size, CFM, air diffusion pattern and fire damper, if required.
2. Performance: Submit complete performance data (throw, pressure drop, noise level, etc.) for all grilles proposed, other than those scheduled. Testing shall be in accordance with ANSI/ASHRAE 70-1991. If, according to the certified data of the manufacturer of the proposed units, the sizes indicated on the drawings will not perform satisfactorily, the units shall be reselected by the Contractor for the proper diffusion, spread, pressure drop, throw and noise level.
3. Frame and Accessories: All supply, return, and exhaust grilles shall not have an opposed blade volume control damper unless otherwise noted. All surface mounted grilles shall have a perimeter gasket and flanged edge. All grilles shall have frames suitable for mounting in the surfaces designated by the architectural drawings. Key or screwdriver operated, no slide bars.
4. Finish: All ceiling and wall grilles and all louvers shall have a paintable white finish unless otherwise noted. Interior components (everything behind the face plate) shall be flat black. Floor grilles shall have an anodized aluminum finish unless otherwise noted.

2.3 EQUIPMENT:

A. General Requirements:
1. Capacity: Capacities shall be in accordance with schedules shown on drawings. Capacities are to be considered minimum.
2. Dimensions: Equipment must conform to space requirements and limitations as indicated on drawings and as required for operation and maintenance. Where Architectural screening is indicated, equipment shall not extend above or beyond screening. Equipment will not be accepted that does not readily conform to space conditions. Prepare and submit layout drawings for all proposed equipment (different than scheduled units) showing actual job conditions, required clearances for proper operation, maintenance, etc.
3. Ratings - Electrical: Electrical equipment shall be in accordance with NEMA Standards and UL or ETL listed where applicable standards have been established.
4. Piping: Each item or assembly of items shall be furnished completely piped for connection to services. Control valves and devices shall be provided.
5. Electrical:
   a. General: Each item or assembly of items shall be furnished completely wired to individual terminal blocks for connection to single branch electrical circuit. All electrical accessories and controls required by equipment shall be furnished. Provide terminal blocks for controls and interlocks not included in equipment package. Manual and magnetic starters shall have ambient compensating running overcurrent protection in all ungrounded conductors. Magnetic starters shall be manual reset, shall have H-O-A switches and auxiliary contacts. Controllers and other devices shall be in NEMA 1 or 3R enclosures as applicable.
   b. Wiring: Conductors, conduit, and wiring shall be in accordance with Electrical Specifications. Individual items within assembly shall be separately protected with dead front, fused disconnect, fuse block, or circuit breaker for each ungrounded conductor, all accessible on operating side of equipment. Switches, contacts and other devices shall be in ungrounded conductors.
   c. Motors: Shall be rated, constructed and applied in accordance with NEMA and ANSI Standards without using service factor. Single-phase motor shall be of type to suit application. Three-phase motors shall be open drip proof, NEMA B design on pumps and fans, NEMA C on reciprocating equipment, sealed ball bearing, three-phase induction unless otherwise noted. Design shall limit starting inrush current and running current to values shown on drawings. Motors 1 horsepower and larger shall be the premium efficiency type, tested according to IEEE Standard 112, Method B. Motors exposed to

weather shall be TEFC. Motors in a fan air stream shall be TEFC or TEAO. Vertical motors outdoors shall be ODP or TEFC and shall have rain caps.

d. Starters: Motor starters shall be furnished for all equipment except where starter is in a motor control center as designated on the electrical drawings. Deliver starter to Electrical Contractor for installation and wiring.

e. Control Voltage: Equipment connected to greater than 240 volts shall be provided with 120 volt control circuit from integral protected transformer if separate source is not indicated on plans. 240 volt control is acceptable if confined within control panel.

f. Submittals: Included in shop drawings shall be internal wiring diagrams and manufacturer's recommended external wiring.

6. Screens: All duct or louver openings to the outside shall be covered with 1/2", 16-gage, galvanized wire mesh screen.

7. Sound Ratings: Shall be in accordance with ASHRAE 36 - 72. Sound ratings shall not exceed scheduled values.

B. Exhaust Fans:

1. General: All exhaust fans shall be tested and rated in accordance with AMCA Standard 210. Fans exposed to weather shall have ventilated weatherproof housing over motor and drive assembly. Refer to Paragraph 2.3A for general requirements. All direct drive fans shall be provided with unit mounted speed controllers. All exhaust fans shall have a disconnect switch. All motors 1 horsepower and larger shall be the premium efficiency type.

2. Ceiling Fan: Direct driven, centrifugal exhaust fan. Fan wheel housing and integral outlet duct shall be galvanized steel or injection molded from a specially engineered resin exceeding UL requirements for smoke and heat generation. Outlet duct shall have an aluminum backdraft damper with continuous aluminum hinge rod. Inlet box shall be minimum 22-gauge galvanized steel. Motor shall be isolation mounted to a one piece galvanized stamped steel integral motor mount/inlet. Provide a field wiring compartment with disconnect receptacle. Provide an adjustable prepunched mounting bracket to accommodate different ceiling thickness. Provide a powder painted white aluminum egg-crate grille. Unit shall be designed with provision for field conversion from ceiling to in-line. Wheel shall be centrifugal forward curved type, galvanized steel or injection molded of polypropylene resin. Motor shall be open drip proof type with permanently lubricated sealed bearings and include impedance or thermal overload protection and disconnect plug. Greenheck.

3. Wall Fan: See Equipment Schedule on Mechanical Drawings.

C. Fly Fan: See Equipment Schedule on Mechanical Drawings.

PART 3: - EXECUTION

3.1 DUCTWORK INSTALLATION:

A. General:

1. Standards: Unless otherwise noted, all ductwork shall be constructed and installed in accordance with current SMACNA Standards. Ductwork shall be built to a pressure classification equal to or greater than the maximum operating pressure at that point in the ductwork. A copy of these standards shall be maintained at the job site at all times. Duct work and accessories shall be installed in a manner to prevent vibration and rattling.

2. Access: 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. Remote regulator shall be as detailed on drawings.

3. Flanges and Escutcheon: Where ductwork penetrates walls, ceilings, or floors, furnish and install flange or escutcheon of same material as duct.

B. Low Velocity-Low Pressure (up to 2,000 ft/min and up to 2.0 in water):

1. Sheet Metal Ductwork:
   a. Ells: Ells with less than standard radius and square ells shall be fitted with turning vanes.
   b. Tees: Tees in supply ductwork shall be straight tap-in with extractor or 45 degree take-off as shown on drawings. Grilles or branches in supply ductwork shall be a minimum of 8 duct diameters downstream of tees.
   c. Duct Joints and Seams: All joints and seams which are not exposed to weather shall be sealed airtight with duct sealant. All joints and seams exposed to weather shall be sealed air and water tight with silicone sealant. (See Part 2 of this Specification). All joints on metal ductwork not exposed to weather but exposed to view shall be sealed air tight with grey duct sealant.
   d. Dampers: Install volume control damper and damper regulator in all branch ducts.

3.2 AIR TERMINALS AND DUCT FITTINGS INSTALLATION:

A. General: Unless otherwise noted, all air terminals and duct fittings shall be installed in accordance with current SMACNA Standards. Terminals and fittings shall be installed in a manner to prevent vibration and rattling. Metal surfaces exposed to view behind grilles and registers shall be painted flat black.

3.3 EQUIPMENT INSTALLATION:

A. General: It shall be the responsibility of the equipment installer to ensure that no work done under other specification sections shall in any way block or otherwise hinder the equipment. All equipment shall be securely anchored in place. All equipment shall be installed level.

B. Connections to Equipment: Where size changes are required for connections to equipment, they shall be made immediately adjacent to the equipment and, if possible, inside the equipment cabinet.

3.4 TESTS AND ADJUSTMENTS:

A. General: Unless otherwise directed, tests shall be witnessed by a representative of the Architect. Work to be concealed shall not be enclosed until prescribed tests are made. Should any work be enclosed before such tests, the Contractor shall, at his expense, uncover, test and repair all work to original conditions. Leaks and defects shown by tests shall be repaired and entire work retested.

3.5 SYSTEM ENERGY BALANCE:

A. Scope: Provide the services of an independent test and balance agency to test, adjust and balance, retest and record performance of the system to obtain design quantities as specified. The agency must prove that they have no affiliation with any equipment manufacturer, design engineer, installing contractor, or any other party which might lead to a conflict of interest, in order to provide an unbiased, third party system balance and report.

B. Qualifications: Prior to commencing work, the agency shall be reviewed by the Engineer and shall be certified by the Associated Air Balance Council, National Environmental Balancing Bureau or Testing, Adjusting and Balancing Bureau. The agency shall provide documentation of having successfully completed at least five projects of similar size and scope.

C. Instruments: All instruments shall be accurately calibrated; calibration histories shall be available for examination. Application of instrumentation shall be in accordance with AABC, NEBB or TABB standards.

D. Submittals: Include in shop drawings copies of forms to be used for testing and balancing showing all data which is to be recorded. Three copies of completed balance report shall be submitted to and reviewed by the Mechanical Engineer prior to the final mechanical construction review.

E. Procedure - General: Procedure shall be in accordance with Associated Air Balance Council's "National Standards for Field Measurements and Instrumentation - Total System Balance", Volume Two, No. 12173, or equivalent NEBB or TABB standards. System shall be in full, continuous operation during test. Balanced quantities shall be plus 10%, minus 0% of design quantities. All nameplate data, manufacturer, model and serial numbers shall be recorded for each item tested.

F. Extended Warranty: The test and balance agency shall include an extended warranty of 90 days after completion of test and balance work, during which time the Engineer, at his discretion, may request a recheck or resetting of any item or items in test report. The agency shall provide technicians to assist the Engineer in making any tests he may require during this period of time.

G. Air Balance Procedure (For Each Air Handling System):
1. All air filters shall be clean when air balance is performed.
2. Provide a sketch of the equipment showing exactly where all pressure readings were taken.
3. Adjust blower RPM to design requirements.
4. Record motor full load amperes.
5. Make pitot tube traverse of main supply and return ducts and obtain design CFM at fans.
6. Record system static pressures, inlet and discharge.
7. Record filter quantity, size(s) and pressure drop across filter(s) at each filter bank.
8. Adjust system for design CFM recirculated air.
9. Adjust system for design CFM outside air.
10. Record entering air temperatures. (DB heating, DB and WB cooling.)
11. Record leaving air temperatures. (DB heating, DB and WB cooling.)
12. Adjust all main supply and return air ducts to design CFM.
13. Adjust all zones to design CFM, supply and return.
14. Adjust all diffusers, grilles and registers to plus 10%, minus 0% of design requirements.
15. Adjust CFM at all exhaust fans, make-up units, etc. (high and low speed, where applicable). Record applicable data from items 1 through 11 above.
16. Each grille, diffuser and register shall be identified as to location.
17. Verify proper diffusion pattern for all ceiling grilles and that all sidewall grilles are set for 5 degrees upward deflection unless otherwise noted. Make a notation of any that are not set properly.
18. Size, type and manufacturer of diffusers, grilles, registers and all tested items shall be identified and listed. Manufacturer's ratings shall be used to make required calculations on all items.
19. Readings and tests of diffusers, grilles, and registers shall include required FPM velocity and test resultant velocity, required CFM and test resultant CFM after adjustments.
20. In cooperation with the control manufacturer's representative, set adjustments of automatically operated dampers to operate as specified. Testing agency shall check all controls for proper calibrations and list all controls requiring adjustment by control installers.
21. All diffusers, grilles and registers shall be adjusted for required air patterns and to minimize drafts.
22. As a part of the work of this contract, THE AIR CONDITIONING CONTRACTOR shall make any changes in pulleys, belts and dampers or the addition of dampers required for correct balance as recommended by air balance agency, at no additional cost to Owner.
23. Set, test and adjust packaged heating/cooling unit economizer operation in cooperation with controls contractor. Record minimum and maximum outside and exhaust airflows.

3.6 TEMPERATURE CONTROL SYSTEM:

A. Scope: The control system includes control panels, control devices, line and low voltage control and interlock wiring, conduit and related equipment as required for proper operation of all controlled systems. Control and interlock wiring includes wiring to controllers, switches, timers, relays, etc. Power wiring and disconnect switches are included in the Electrical Specifications except that power wiring required for control devices such as controllers, etc., is included in the control system.

B. Type of system: The control system shall be electric/electronic.

C. Contractor Qualifications: All controls shall be furnished and installed by a Contractor who is licensed, certified or contracted by the controls manufacturer for design, installation, start-up and service of their product. The Contractor must have factory supplied training and support. The Contractor must have sufficient personnel to respond to a trouble call at the site within two hours. The Contractor's local manager shall have a minimum of five years of experience in the design, installation, start-up and service of similar systems. The Contractor shall submit a list of at least five projects which are similar in size, scope and contract value to this project. This list shall include the Owner's contact person, phone number and controls contract value.

D. Submittals: Submittals shall include the following:
1. Contractor qualifications. Manufacturer licenses, contracts or certifications for the installer shall be submitted on manufacturer's letterhead.
2. Manufacturer's data for all devices.
3. Diagrams showing control schematics. Diagrams shall include all sensors, terminal strips, panels and control devices. Locations of all devices shall be indicated.
4. Sequence of operation.

E. System Components:
1. Thermostat: Single setpoint, line voltage thermostat. Adjustable setpoint.
2. Wall Switches: Plates for all wall switches and timers shall match those specified in Division 16.
3. Labels: All labels, signs, etc. shall be engraved, laminated plastic, white on black background, 1/8" high lettering, minimum.
4. Mechanical Timer: 0-2 hour (adjustable) mechanical timer. Marktime.

F. System Shall Function as Follows:
1. Exhaust Fan: See Equipment Schedule on Mechanical Drawings for control. EF-2,3 shall have line voltage thermostat, set to turn on fan when space temperature exceeds 85F (adj.).

G. Installation: All electrical work shall be in accordance with the California Electrical Code and Electrical Specification Sections. All electric/electronic systems shall be hardwired in conduit. Wiring shall be concealed in walls, above the ceilings, or below grade unless otherwise noted. Exposed wiring shall run parallel to room surfaces; location shall be approved by the Architect. No structural member shall be weakened by cutting, notching, boring or otherwise. Provide a 120 volt circuit for each device requiring external power. Dedicated circuits shall be provided where required. Any devices or wiring exposed to the weather shall be protected in weatherproof enclosures such as NEMA 3R and weatherproof conduit. Set, test and adjust the system for proper operation.

END OF SECTION

SECTION 26 6000
GENERAL CONDITIONS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary conditions, Divisions 0 and 1, specifications apply to work of this section.

1.02 GENERAL

A. All work must conform to the requirements which fall within the scope of the regulations in the Codes or under the jurisdiction of any of the governing bodies listed.

B. The California Code of Regulations, Titles 19 thru 24.

C. The California Electrical Code as applicable under current state and local regulations (latest edition and supplements).

D. State Board of Health.

E. CAL-OSHA Regulations.

F. Nothing in these Specifications or shown on the plans shall relieve the Contractor from full compliance with applicable portions of any of the above regulations pertaining to work which is installed under this Contract.

1.03 PERMITS AND FEES

A. Pay for and obtain all permits, inspection fees, etc., as required for the completion of all work included in this Contract. Any inspection Certificates required shall be obtained and delivered to the Owner.

1.04 EXAMINATION OF DRAWINGS AND SITE

A. Before submitting the bid, the Contractor shall carefully examine the Architectural, Structural, Mechanical and Plumbing Drawings for this work, along with the Specifications for same in addition to the drawings and specifications governing the work of this trade. The Contractor shall also visit the site of the proposed construction and familiarize himself with all the site conditions. No subsequent allowances will be made to the Contractor because of negligence in complying with the above or alleged inability to understand the requirements.

1.05 CONDUCT OF THE WORK

A. The Contractor shall maintain on the job a competent foreman or a superintendent at all times to superintend the work.

1.06 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall be responsible for the safety and good condition of all materials and equipment until final acceptance by the Owner. The Contractor shall erect and maintain suitable barriers, protective devices, lights, and warning signs where required for the protection of the public and employees about the buildings. The Contractor shall be fully responsible for any loss or injury to persons or property resulting from neglect or the carelessness and neglect by the Contractor’s employees.

1.07 SUBMITTALS

A. Shop drawings of power, signal, service, and distribution equipment and lighting fixture catalog cuts shall be submitted for approval in electronic format (PDF).

B. All shop drawings shall be submitted at one time in a neat and orderly fashion in electronic format (PDF) with a title sheet including Project, Engineer and Contractor, table of contents. All items shall be identified by the specification paragraph number for which they are proposed. All equipment shall also be identified by the mark number as indicated on drawings.

C. Equipment or material furnished or incorporated in construction without prior approval of the Architect may be rejected and if rejected shall be removed from the structure and replaced with approved equipment or material at the Contractor's expense.

1.08 RECORD DRAWINGS

A. See General Conditions.

1.09 CATALOG DATA AND OPERATING INSTRUCTIONS

A. Upon completion of the work in this Contract, the Architect shall be furnished with a complete set of catalog data which describes each piece of equipment installed under this Contract. The catalog shall be bound in a set and shall be clearly labeled as to each item of equipment used.

PART 2 – PRODUCTS

2.01 LIST OF MATERIALS

A. Within thirty (30) calendar days after the award of the Contract, the Contractor shall submit PDF copies of a complete list of materials to be installed under this Contract, giving, in the case of each item of material to be used, the name of the article. All substitutes must be approved by the Architect as stipulated in Section 01620.

PART 3 - EXECUTION

3.01 GENERAL

A. The work as laid out is to some extent diagrammatic, and the location thereon indicated may be approximate only. The Contractor, therefore, shall install all the equipment, apparatus, conduit runs and the like as follows:

B. Adhere to the location indicated as far as possible.

C. Maintain ample head room in all rooms and passageways, clearance around all apparatus and equipment and under pipelines for unrestricted passage and for easy servicing of all apparatus, equipment, devices and the like.

D. Verify the exact locations of all fixtures and other apparatus or devices as indicated on the drawings. In the event these drawings do not sufficiently indicate the locations for all such fixtures, apparatus or devices, the Contractor shall obtain the exact locations from the Architect.

3.02 CUTTING AND PATCHING

A. This Contractor shall do all cutting and patching of the work for the installation of the equipment and materials as approved by the Architect and/or Engineer. All patching shall accurately match the adjoining work.

3.03 BORING

A. Provide mechanical boring equipment to bore under existing asphalt, concrete, or other surfaces or objects as noted on the drawings. All borings shall be a minimum of 24” under the substrate material unless otherwise authorized by the Architect.

B. Holes shall be bored not to exceed 1” larger diameter than the largest component remaining in the excavation.

C. Water or air pressure jetting are not permitted, unless they comply with the following requirements:
   1. All surfaces of the hole can be visually inspected with 6’ maximum length.
   2. All objects shall be supported continuously to prevent sagging.
   3. The hole shall be filled with compacted damp sand and inspected by the Project Inspector or Materials Testing Lab technician.

3.04 FOUNDATIONS AND SUPPORTS

A. This Contractor shall provide all foundations, supports and hangers, etc., as required to install the equipment as specified or shown on the drawings. All equipment shall be supported, braced and cross-braced in such manner as to prevent sway and/or lateral movement.

3.05 EXCAVATION AND BACKFILLING

A. Excavating required for the installation of the work shall be done by this Contractor. Underground lines outside the buildings shall be installed with a minimum cover of 24" except depth of utility services shall comply with respective utility company requirements.

B. The conduit shall be laid on material described below to afford bearing for the full length of the conduit. Any part of the trench excavated below grade shall be corrected with thoroughly compacted material approved by the Architect.

C. When the bottom uncovered at subgrade is soft and, in the opinion of the Architect, cannot support the conduit, a further depth shall be excavated and refilled to conduit foundation grade as required by the Architect.

D. Backfill:
   1. 6" Below, Around, and to 6" Above Conduit: Material shall be sand. Place carefully around and on top of conduit, taking care not to disturb conduit. Consolidate with vibrator.
   2. 6" Above Conduit to Grade: Material shall be sandy or silty loam, free of lumps, laid in 6" layers, uniformly mixed to proper moisture, and compacted to required density. If backfill is determined to be suitable and required compaction is demonstrated by laboratory test, water compaction in 6" layers may be used, subject to review by Engineer.

E. No excavation below the level of, or adjacent to, foundations of footings shall be made except in a manner approved by the Architect.

F. A red or yellow tracer tape stating "CAUTION ELECTRIC LINE BURIED BELOW" shall be installed 12" above conduit, full length of trench.

G. Electrical conduit shall not be run in excavations provided for plumbing or heating pipes, unless separated by a minimum of 12 inches.

H. Verify location of all underground lines with Owner and utility companies before starting excavation. If any utility company facilities are identified and located within the perimeter of the building, the Contractor shall stop work, promptly notify the Architect, and secure instructions.

I. Ten (10) days before doing any excavation or trenching, contact "Underground Service Alert," 1-800-642-2444, advise them of work schedule and comply with their recommendations.

3.06 CLEANING UP

A. The Contractor shall keep the premises free from accumulations of waste material or rubbish. At the completion of the work, he shall remove all rubbish, tools, scaffolding and surplus materials from and about the buildings, leaving the premises in a clean condition.

B. All exterior surfaces of exposed equipment and material shall be thoroughly cleaned of all dirt, cement, plaster and other debris, including the exterior surfaces of all conduit, conduit fittings, conduit hangers, insulation and the like.

C. All surfaces to be painted shall be carefully wiped or otherwise cleaned; cracks and corners scraped out clean, grease and oil spots removed so that surfaces may receive paint without further preparation.

D. All fixtures and plated materials shall be thoroughly cleaned and polished.

3.07 DAMAGE BY BREAKS

A. The Contractor shall be responsible for all damage to any part of the premises caused by breaks in conduit or fixtures furnished and/or installed by him under this specification for a period of one (1) year from date of acceptance of the project by the Owner.

3.08 SITE CONDITIONS

A. Where existing utilities are shown on the plans, extreme care shall be exercised in excavating near these utilities to avoid any damage thereto, and the Contractor shall be held responsible for any such damage caused by this operation.

B. The general location and arrangement of conduit, equipment apparatus, etc., as shown in the drawings or herein specified and all installations shall be made in accordance therewith. Information on the drawings relative to existing services is approximate only. Minor deviations required to conform to actual locations shall be made without additional cost to Owner.

C. Should existing utilities, not shown on the plans, be found during excavations, or identified, the Contractor shall promptly notify the Architect for instructions as to further action. Failure to do so will make the Contractor liable for any damage arising from the operations after discovery of such utilities not shown on the plans. These utilities shall be removed or relocated as directed by the Architect. An equitable adjustment in the Contract will be made for the additional work involved.

D. The Contractor shall use special precautions where excavations are made in the areas near electrical ducts since they may be high voltage ducts. All such ducts shall be exposed by careful hand excavation so as not to damage the ducts or cause injury to personnel and shall be suitably marked with warning signs, barricades, etc. as required.

3.09 STANDARD PRACTICE

A. All work not shown in complete details shall be installed in conformance with the best standard practice for the trade.

3.10 INTENT

A. It is the intention to provide systems that are complete in every respect without further cost to the Owner. Anything not shown in drawings, or indicated in the specifications, but required for complete operating systems shall be included as part of this Contract. This shall include all connections to existing services.

3.11 SPECIAL NOTE

A. Attention of Contractor is hereby called to all work covered by notes on the drawings. Work covered by notes must be furnished and installed whether it is specifically mentioned in these specifications or not.

3.12 GUARANTEE

A. Except as otherwise specified, all materials, apparatus equipment furnished and installed under the Electrical Section of this specification shall be new and free from all defects. Should any trouble develop within a period of one (1) year from date of acceptance of the work, due to inferior or faulty material and/or workmanship, the trouble shall be corrected, and material and equipment replaced by the Contractor without expense to the Owner.

3.13 SERVICES

A. The location of any existing utility services shown on the drawings is approximate and shall be checked by this Contractor for exact location. Refer to “EXCAVATION AND BACKFILLING” for additional requirements.

3.14 ACCESS OPENINGS

A. It shall be the responsibility of the Contractor to provide sufficient and convenient access openings, panels, etc., in the building construction where required for the maintenance of, installation and/or removal of all equipment, or other items of the various systems and equipment.

3.15 PURCHASE ORDERS AND ACCEPTANCE

A. The Contractor shall file with the Architect two (2) certified copies of all purchase orders, for materials, equipment, appliances, and rentals thereof within two (2) weeks from date of Notice to Proceed with the Contract if requested by the Architect.

B. The Contractor shall file with the Architect two (2) certified copies of acceptance of purchase orders for materials, equipment, and appliances by the manufacturer, distributor, or wholesale house within six (6) weeks from the date of Notice to Proceed with the Contract if requested by the Architect.

C. Failure to provide same within the stipulated time shall be deemed sufficient cause for the Architect to withhold certificates of payment for work completed or materials and equipment provided by the Contractor or subcontractors toward the completion of their Contracts.

END OF SECTION

SECTION 26 7000
BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. UL 845 - Motor Control Centers; Current Edition, Including All Revisions.

B. UL 1449 - Standard for Surge Protective Devices; Current Edition, Including All Revisions.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary conditions, Divisions 0 and 1 and Section 26 6000 specifications apply to work of this section.

1.03 SCOPE OF WORK

A. This portion of the work includes the furnishing of all labor and materials necessary for the complete wiring system to outlets and all equipment shown on the drawings or covered by this Section of the Specifications and other Division 26 and Division 28 sections of the Specifications. In general, the work includes the following:

1. Complete system of branch circuit wiring, conduit and distribution equipment for lights, receptacles, and power.
2. Furnish and install lighting panelboards, lamps, lighting fixtures, wall switches, convenience outlets, etc. as shown on drawings.
3. All hangers, anchors, sleeves, chases, and supports for fixtures, all electrical equipment and materials.
4. Furnish, install, and connect wire, conduit, and switches, etc. required for other equipment covered by other sections of these Specifications.
5. All excavating and backfill as required for electrical work.
6. The patching and repair of all work modified or damaged by the installation of work under this Contract.
7. Outlet boxes and conduit system for telecommunications (voice and data).
8. Demolition work.
9. Terminal cabinets and backboards.
10. The Contractor shall furnish and install all work necessary to make complete systems, whether or not such details are mentioned in these Specifications or shown on the drawings, but which are necessary in order to make complete working systems, excepting only those portions that are specifically mentioned therein or plainly marked on the accompanying drawings as being installed by other Contractors.
11. Electrical Contractor must coordinate his work with the work of other trades so as to provide raceways, conductors and outlets in the correct location for the equipment served, including all built-in appliances, mechanical, and signal equipment and connect same. Electrical Contractor must provide power of the correct voltage and phase to each item of equipment.
12. Before construction starts, the Electrical Contractor shall arrange a coordination meeting with the General Contractor and all other subcontractors supplying equipment that requires electrical connections. All electrical requirements shall be verified, and any problems shall be immediately reported to the Architect. Equipment items to verify shall include, but not be limited to: Voltage, amps, phase, location, orientation, space requirements, type of connection, starter and disconnect location and provision, control system operation and requirements, etc.
13. The above list is given for the convenience of the Contractor and is not considered all-inclusive.
14. Complete system of conduits, substructures and equipment for power, telephone, and cable television services. The Electrical Contractor shall inform the respective utility companies that the project has been started and confirm that all forms, which are required

for the Application for Service, have been completed and submitted to the Utility Company. The Electrical Contractor shall obtain a copy of the approved engineering drawings prior to construction.

1.04 TEMPORARY CONSTRUCTION POWER

A. Provide a temporary construction power system that is adequate for this project. Coordinate requirements and details with the General Contractor. All 120V, 15A and 20A receptacles shall have ground fault circuit interrupter protection.

1.05 WORK NOT INCLUDED

A. A. The furnishing and installation of motors.

B. Access panels.

1.06 COORDINATION WITH MECHANICAL WORK

A. The Mechanical Contractor shall furnish equipment such as motors, starters, thermostats, wiring diagrams, etc. However, the Electrical Contractor shall be responsible for furnishing and installing of all fused disconnect switches, conduits, wire, fittings, etc. for power connections.

B. Install all electrical equipment where it is not already installed as a part of a unit furnished by the Equipment Contractor. (See drawings of respective contractors).

C. The Electrical Contractor shall furnish fused disconnect switches for pumps, motors and air conditioning and handling units, if they are not furnished by others. Fuses shall be dual element, rating per equipment manufacturer's recommendations. Disconnects shall comply with requirements for "Motor Disconnects" as specified earlier in this section.

D. All disconnect switches (whether provided with unit or by Contractor) shall have a circuit identification engraved nameplate as specified under "Motor Disconnects".

E. Thermal overload protection shall be furnished for all motors where such protection is not included as a part of another contract.

F. All motor outlets, disconnect switch locations and control outlets shown on the plans are approximate only. Verify exact location of same with Equipment Contractor.

G. All line and low voltage controls, including conduits, outlets, wiring and connections shall be furnished and installed by the Mechanical Contractor. (Division 23).

H. Furnish and install a weather-resistant duplex receptacle with ground fault circuit interrupter protection within 25 ft. of all rooftop H.V.A.C. units. Provide a diecast weatherproof "while-in-use" lockable cover, Red Dot #CKSUV or equal.

I. Coordinate with General Contractors, Mechanical Contractors and equipment suppliers before bid is submitted and again before rough-in is started to verify that all systems are complete and all components are provided including starters, disconnects, relays, solenoids, control conduit and wire, etc.

PART 2 - MATERIALS

2.01 GENERAL

A. All materials, appliances, and equipment except that furnished by the Owner shall be new, bear U.L. Label and of the make, brand or quality specified or as accepted by the Architect as herein provided. This shall also apply to all parts of the work whether or not this particular paragraph is referred to by number.

B. All apparatus, conduit systems, etc., shall be installed and interconnected so as to form complete systems as herein specified and/or shown on all the accompanying drawings. This Contractor shall furnish and install all work necessary to make complete working systems, excepting only those portions that are specifically mentioned herein or plainly marked on accompanying drawings as being furnished by other contractors.

2.02 MAIN SWITCHBOARD

A. Existing to remain.

B. NewCircuit breakers shall be molded case type, quick-make, quickbreak, with thermal magnetic trip. Size and rating shall be as shown on the drawings. All circuit breakers shall be bolt-on type. Two and three pole breakers shall have integral internal common trip. All circuit breakers, rated 100 amps and larger, shall be equipped with adjustable instantaneous trip settings.

C. All new circuit breakers in the main switchboard shall have short circuit current interrupting capacity exceeding the maximum available at service transformer. Contractor shall be responsible for obtaining fault current information from serving Utility Company prior to fabrication of main switchboard. The main switchboard shall have an integrated short circuit current interrupting rating of a minimum of 30,000A symmetrical, or greater if indicated on drawings.

D. Underground pull sections shall be manufactured by the same manufacturer of the switchboard and per the serving Utility Company's requirements.

E. The Electrical Contractor shall submit three (3) copies of the main switchboard shop drawings to the Serving Utility Company for their approval prior to fabrication of the main switchboard.

2.03 PANELBOARDS

A. The panelboards shall be constructed in accordance with the standard set up by the Underwriters' Laboratories, Inc., and as manufactured by Square "D", General Electric, Eaton, Siemens or approved equal, and each shall contain the number and type of circuit breakers as indicated on the drawings. All circuit breakers, rated 100 amps and larger, shall be sub-feed type and equipped with adjustable instantaneous trip settings.

B. The panelboards shall be equipped with a hinged lockable door, piano hinged trim, and typewritten circuit directory. All finish in offices, corridors, or areas subject to public view shall be prime coat for finish coat by painter. In storage rooms, equipment rooms, etc., finish shall be standard factory gray Hammertone. Provide a flush lock on all panelboards.

C. Provide an engraved Bakelite nameplate, fastened with screws or rivets to the face of each panelboard, which will identify it.

D. Any panel with an isolated ground bus shall have a nameplate stating, "IG CIRCUITS". Nameplate to be same size and color and adjacent to panel designation nameplate.

E. Seven copies of detailed construction drawings for the panelboards and terminal cabinets shall be submitted to the Architect for Approval before their construction is started.

2.04 TERMINAL CABINETS

A. Terminal cabinets shall be flush, or surface mounted as indicated with hinged doors and lock. The exterior finish to be same as for panelboards. Provide ¾" plywood backing inside of cabinet. Provide proper number of terminals in cabinets as required.

B. Provide a Bakelite nameplate fastened with screws or rivets to the face of each terminal cabinet, which will identify it.

C. Provide circuit directory and holder on inside of door with one line for each conductor entering and each conductor leaving cabinet.

2.05 RACEWAYS AND FITTINGS

A. Shall be manufactured by Allied Tube and Conduit Corporation, AFC Cable Systems, Inc., Carlon, Cantex, PW Pipe or approved equal.

B. Galvanized rigid steel conduits (RSC) may be used in all above ground locations.

C. For underground runs in direct contact with earth, conduit shall be PVC.

D. Galvanized intermediate metallic conduit (IMC) may be used in indoor locations not in direct contact with earth.

E. Galvanized electrical metallic tubing (EMT) may be used in indoor dry locations in which it is:
   1. Not subject to physical damage.
   2. Not in direct contact with earth.
   3. Not in concrete slabs.
   4. Not in hazardous areas.
   5. On roof or walk cover when specifically shown on drawings.
   6. In masonry walls, not in the same cells as rebars.

F. Non-metallic rigid conduit shall be PVC Schedule 40 and may be used:
   1. Underground.
   2. Below concrete slab on grade.
   3. In concrete slab on floors above grade.
   4. In masonry walls, not in same cells as rebars.

G. Flexible steel conduit may be used in dry locations for final connections to:
   1. Motors, transformers, and other mechanical equipment, not to exceed 18 inches.
   2. Lighting fixtures, not to exceed 72 inches.
   3. Facilitate wiring in tight locations, when approved by Engineer.

H. Flexible aluminum conduit may be used in walls or in attics to facilitate wiring in tight locations, when approved by the Engineer.

I. Liquidtight flexible steel conduit shall be used in outdoor or wet locations for final connection to motors or other mechanical equipment, not to exceed 18 inches.

J. Fittings:
   1. For rigid and intermediate steel conduits, fittings shall be:
      a. Galvanized rigid steel threaded type.
      b. Provide insulated grounding bushings at switchboard enclosures and panel enclosures for feeders.
   2. For electrical metallic tubing (EMT), fittings shall be:
      a. Zinc plated steel set screw type in dry locations.
      b. Zinc plated steel compression type for conduits larger than 1”, in wet locations and in masonry walls.
      c. All connectors shall have an insulated throat.
   3. For non-metallic conduits, fittings shall be PVC Schedule 40 type. Use PVC schedule 40 adapters at all boxes and panelboards.
   4. Brush or dauber apply PVC cement.
   5. For flexible metallic conduits, fittings shall be zinc plated steel/malleable iron squeeze type.
   6. For liquidtight flexible metallic conduits, fittings shall be zinc plated steel/malleable iron compression type.
   7. Use of the following is prohibited:
      a. Crimp-on, tap-on or indenter type fittings.
      b. Spray (aerosol) PVC cement.

2.06 PULL BOXES

A. Pull Boxes shall meet all code requirements as to size for conduits terminating therein and to thickness of material used in fabrication.

B. Fabricated sheet steel pull boxes shall be installed only in dry, protected locations and shall be furnished with knockouts and removable screw cover. The box shall be finished with one coat of zinc chromate and a coat of primer sealer and where exposed to public view shall be painted to match the surrounding surface.

C. Weatherproof sheet steel pull boxes shall be fabricated of code gauge galvanized sheet steel with two coats of rust resistant finish and shall be furnished with gasket and made completely weathertight.

D. Approved manufacturers for metal boxes are Cooper B-Line, Milbank, Hoffman or approved equal.

E. Weatherproof concrete pull boxes, junction boxes and telephone boxes shall be manufactured by Christy Concrete Products, Utility Vault or approved equal. All pull boxes shall be H/20 rated and be equipped with H/20 rated galvanized steel checker plate cover with the inscription "Electric, Lighting, Fire Alarm or Signal".

2.07 TIME SWITCHES

A. Time switch shall be a two-circuit digital time clock with photo control input, battery back-up and a surface enclosure. Provide a flush enclosure when indicated. Tork #DGLC (120V) or DGLC-3 (277V) or approved equal.

2.08 OUTLET BOXES

A. All outlet boxes shall be standard one or two piece galvanized knockout outlet boxes. Raco, Appleton, Thomas and Betts or approved equal.

B. All outlet box covers, rings or other fittings shall be standard galvanized. Raco, Appleton, Thomas and Betts or approved equal.

C. No outlet box shall be smaller than four inches (4") square and 1 ½" in depth, except in concrete block construction where Thomas and Betts concrete masonry boxes are approved.

D. Floor outlets on grade shall be fully adjustable type floor boxes, suitable for use in concrete floors. Wiremold #RFB6E-OG with a Wiremold #8CTC2NKTR Evolution cover assembly. Where floor box is installed in a bare concrete floor, provide a Bare Concrete and Terrazzo ring, Wiremold #RFB6E-CTR with a Wiremold #8CT2NKTR Evolution cover assembly.

E. Cover shall be die-cast aluminum with nickel finish, unless otherwise noted on drawings. For 120V power, provide an industrial specification grade 20A 125V duplex receptacle with internal duplex receptacle bracket #RFB6DP, quantity as shown on drawings. For data/telephone, provide a decorator style receptacle bracket #RFB6GFI for mounting frame to accept the modular telephone/data jacks, unless otherwise noted on drawings. Any unused device compartments shall be covered with internal blank bracket #RFB6B.

F. All special outlets shall be as hereinafter specified or as shown on drawings.

G. Thru boxes are not permitted.

H. Any unused boxes shall be equipped with a blank cover plate.

2.09 RECEPTACLES

A. Furnish and install an industrial specification grade 20A, 125-volt, 3 wire grounding type tamper-resistant duplex receptacle with one piece brass mounting strap at all receptacle outlets as indicated on drawings. Leviton #5362-SGW or equal as manufactured by Hubbell, Pass and Seymour, Eaton, or other approved manufacturers.

B. Device color shall be white.

C. Tamper-resistant isolated ground duplex receptacles shall be 20A, 125V NEMA 5-20R, orange in color. Leviton #T5362-IG or approved equal.

D. Tamper-resistant G.F.C.I. duplex receptacles shall be provided for 15 and 20-amp 125-volt circuits where required by the C.E.C. #210.8 and #590.6. At indoor locations, provide Leviton #G5362-0TW or equal. At exterior locations, provide weather and tamper-resistant type G.F.C.I. duplex receptacles, Leviton #G5362-WTW or equal. At damp locations, provide a diecast weatherproof lockable cover, RACO # 5028-0 or equal. At wet locations, provide a diecast weatherproof "while-in-use" lockable cover, Red Dot #CKSUV or equal.

2.10 LOCAL SWITCHES

A. Furnish and install industrial specification grade, quiet type toggle switches, 20 AMP rated 120/277V AC only, controlling wall and ceiling outlets as indicated on the drawings. Leviton #1221-2W or equal as manufactured by Hubbell, Pass and Seymour, Cooper or other approved manufacturers.

B. Where two or more switches are in proximity they shall be ganged in the same box, and they will be set under one plate. Switches controlling lights and/or outlets on emergency power shall be kept entirely independent of all other switches not on emergency power by mounting in a separate box.

C. Special receptacles or switches shall be as noted on the drawings.

D. Where key switches are noted on the drawings, provide Leviton #1221-2KL.

E. Device color shall be white.

F. When a switch is used as a disconnecting means, it shall be mounted in a readily accessible location.

2.11 WALL PLATES

A. All wall plates for electrical outlets and devices shall be smooth stainless steel, non-magnetic type 302S.

B. All telephone outlet plates shall be blanked plates, same as device plates.

2.12 CONDUCTORS (WIRE)

A. All wire installed in this contract shall be of a standard manufacturer as approved by the National Board of Fire Underwriters and be of the size as indicated on the drawings. All wire shall bear the Underwriters' label and shall be brought to the job in unbroken packages and approved by the Job Inspector before it is installed.

B. All power conductors #10 AWG and smaller shall be type THWN copper, unless otherwise noted. All conductors #8 AWG and larger shall be type THWN-2 copper, unless otherwise noted.

C. All underground conductors in a 480V or 480/277-volt power system shall be type XHHW-2 copper, unless otherwise noted.

D. Number 12 AWG wire shall be the smallest gauge wire used, except for signal circuits, which shall be as shown on plans or as specified under other sections of these specifications.

E. All wire #8 AWG gauge or larger shall be stranded.

F. The neutral conductor of all lighting feeders shall be of the same size as the phase conductors.

G. Splices on all wire less than #8 gauge shall be with insulated spring connectors Ideal "Wing Nuts", 3M "Scotchlok", or equal.

H. Splices in wires #8 gauge and larger shall be made with crimp on solderless connector, 3M Scotch, Burndy or equal. Connectors to switches or bus bar shall be made with one-piece lugs for all wires, sized for conductors as shown on the plans.

I. Each branch circuit shall be marked with the circuit number at the panel and at the first outlet nearest the panel. E-Z Code Markers (Thomas and Betts) or equal shall be used to label the circuits.

2.13 LIGHTING FIXTURES

A. This Contractor shall submit for approval electronic portfolios, PDF format, with full description and manufacturer data sheets of all fixtures (including ballasts and lamps), that he proposes to use.

B. This Contractor shall furnish and install all lighting fixtures and lamps as indicated on the Electrical Drawings and in accordance with these specifications.

C. This Contractor shall be held responsible for the complete equipment of all fixture outlets with fixtures of the proper design as shown.

D. All fixtures shall be securely anchored to prevent any possible chance of their falling.

E. Continuous runs of fixtures shall be installed straight and true.

F. Recessed fixtures shall be complete with plaster frames, supporting brackets and hanger wires.

G. Stem lengths shall be adjusted to meet conditions where required. Furnish aligners to ensure vertical alignment (ball aligner).

H. Electrical Contractor shall coordinate outlets with Acoustic Tile Contractor and other trades and locate outlets in the center or at intersections of acoustical tile in all acoustical tile ceilings.

I. Recessed fixtures in t-bar ceilings shall be attached to t-bar ceiling with integral

J. t-bar clips, two at each end of fixture.

K. When the light fixture is equipped with an integral emergency battery pack, the light fixture shall be connected so that it is controlled via the room light switch and is automatically energized when power has fails.

2.14 PHOTO CONTROL

A. Paragon or equal, adjustable type.

2.15 MOTOR DISCONNECTS

A. Disconnects shall be fused safety switches with dual element fuses. Heavy Duty rated with quick-make, quick-break operating mechanism. Fuse rating shall comply with motor manufacturer's recommendations. Switch shall be UL listed. Disconnects shall have an external operating handle, lockable in the open or closed position.

B. Disconnect switches shall be located so as not to obscure any part of the HVAC unit's nameplate data.

C. Each disconnect switch shall have an engraved Bakelite nameplate identifying the panel and circuit number that feeds the motor. Nameplates shall comply with specifications for "Identification of Switches and Apparatus".

2.16 DRY TYPE TRANSFORMERS

A. Transformer shall be Class H insulation with temperature rise not exceeding 115 degrees C., in a maximum ambient of 40 degrees C., with rated nameplate load connected to the secondary side, at rated voltage. Unless otherwise noted, the transformer shall comply with the Energy Efficiency levels mandated by the Department of Energy.

B. Transformer shall be built in accordance with the latest revised IEEE, ANSI and NEMA standards.

C. Case temperature shall not exceed 35 degrees C., above ambient.

D. Designs shall incorporate built-in vibration dampening systems.

E. Terminal compartment shall be located to ensure termination of cable leads in temperature levels not to exceed 60 degrees C., and to provide for side or bottom entrance of conduit. Enclosures shall be weatherproof and rodent proof. Ventilation openings shall be louvered type. Screening will not be acceptable.

F. Transformer shall be furnished with 2 taps above and below rated voltage, each 2 ½%.

G. Transformer shall be suitable for non-linear loads and have a U.L. rating of K-4, when indicated on the drawings.

H. Acceptable manufacturers shall be Square "D", General Electric, Eaton, Siemens or approved equal.

2.17 TELEPHONE CABLES

A. When telephone cables are indicated on drawings, they shall be Category 3, 24 AWG, unshielded twisted pairs with 4 pairs minimum, COMMSCOPE #3504 or equal. If in a plenum, use plenum rated cable, COMMSCOPE #35N4 or equal.

PART 3 - EXECUTION AND INSTALLATION

3.01 CONDUIT SYSTEMS

A. A concealed conduit system shall be installed for all interior wiring including controls. Conduit shall be run continuously between outlets, etc., and with the minimum number of bends.

B. PVC 40 shall be used for underground runs.

C. Where underground conduit cannot be run below building footings and the Contractor shall provide PVC-80 sleeves through the footings (Contractor shall obtain approval for all sleeve sizes and locations with the Structural Engineer before installation).

D. All conduit shall be delivered to the site of construction in their original bundles. Each length of conduit shall bear the label of the National Board of Fire Underwriters. All conduit subjected to rough usage while on the job before installation and not acceptable to the Architect shall be removed from the premises upon notice.

E. Conduit installed in masonry walls shall be rigid steel galvanized conduit, PVC or EMT, not in same cell as re-bars.

F. The joints in all conduits installed under concrete slabs on the ground, or underground, or exposed to the weather, shall be made liquid and gas tight. All underground conduit outside of the buildings shall be buried to a depth of not less than 24” below finish grade. Utility services shall comply with utility company requirements. Two or more conduit runs installed in a common trench shall be separated horizontally by at least four inches (4”). Electrical conduit runs installed in a common trench with other utility lines shall be separated horizontally from such lines by at least twelve inches (12”). Provide a detectable warning tape, 12” above the top of the conduit and the full length of trench.

G. Changes in direction shall be made with conduit elbows or long radius bends made on the job. Where two or more conduits are grouped in exposed locations, the sweeps shall be struck from the same center forming concentric arcs.

H. All joints in conduit shall be made with standard coupling. In making joints, conduits must be truly and accurately cut and threaded (where applicable) with straight thread, smoothly reamed and squarely butted. All conduit shall be kept corded and dry during construction, using plastic caps or conduit pennies held in place with conduit bushings. Should dirt or moisture collect in any conduit, the Contractor shall swab them out to the satisfaction of the Architect.

I. Conduits ending at the motors shall be carried as close as possible to the terminal blocks making allowance for the movement of the motors when they are equipped with slide rails. The connection between the conduit terminals on the motor and the conduit shall be made with liquid-tight flexible conduit using the proper fittings.

J. All conduits where they enter panel enclosures, pull boxes, or outlet boxes shall be secured in place by galvanized locknut inside of box.

K. Where conduits are run exposed, they shall be installed straight and true with reference to the adjacent construction.

L. Any conduit installed under the building shall be under the slab. The top of any conduit below floor slab shall be a minimum of 4” below the bottom of the concrete slab.

M. All boxes for bracket outlets shall be equipped with a 3/8” “No-Bolt” fixture stud. These boxes shall be so set that when in place the fixture shall be at right angles to the ceiling or walls.

N. All empty conduit shall be equipped with a nylon pull rope continuous from outlet-to-outlet or end-to-end.

O. Flexible conduit will be permitted for connecting lighting fixtures to junction boxes.

P. Flexible connections in outdoor and damp locations shall be flexible liquid-tight metal conduit or non-corrosive seamless metallic tubing with watertight connections.

Q. Install roof jacks for this construction in accordance with other sections of this Specification.

R. The maximum allowed length of flex conduit at equipment connections is 18".

S. Expansion joints for conduit shall be provided where required to compensate for thermal expansion and contraction.

T. At all sub-panels and terminal cabinets, stub two 1"C and two ¾"C into the accessible attic space. If the attic space is not accessible, stub conduits to a location as directed by Architect or Engineer. Provide additional conduit stubs when indicated on the drawings.

U. Support conduits on roof with prefabricated pipe supports (B-Line "Dura-Blok Series" or equal), spaced 8 ft. O.C. maximum. Minimum clearance from roof to framing channel shall be 4". Framing channel length shall be as required plus 50% spare length. Installation shall comply with manufacturer's recommendations.

V. Any conduit entering underground pull boxes shall be sealed to prohibit water from entering the conduit. Conduits with conductors shall be sealed with a sealing compound after all conductors have been installed. All spare (empty) conduits shall be identified with either the "origination" or "destination" (example: to pull box 150' to the south, from Main Switchboard, etc.). The contractor shall use a scrap piece of ¾" PVC conduit, approximately 5" in length and tie the nylon pull string thru it. Write the description on the conduit using an indelible/permanent marker.

3.02 OUTLETS

A. In general, the locations of electrical outlets shall be as shown on the drawings; however, the Contractor shall make any changes necessary to suit conditions on the job or rearrangement of built-in fixtures and equipment as directed by the Architect or his representative.

B. The Contractor shall study the general building plans with relation to spaces surrounding each outlet in order that his work may fit the work of others and that when fixtures or other equipment are installed, they will be symmetrically located according to room layout. Refer all conflicts and discrepancies promptly to the Architect.

3.03 OUTLET BOXES

A. Outlets for concealed wiring shall be flush with the finished wall or ceiling surfaces. Pull boxes, junction boxes and all others to which no fixture or device is to be attached, shall be fitted with blank cover plates, and painted to match surroundings. In order to reduce noise transmission between rooms, outlet boxes shall not be installed back-to-back. Where outlets are side by side and faced into opposite rooms, the boxes shall be at least 6" apart, except in fire rated walls space boxes at least 24" apart. If the boxes are connected together, the connection shall be flexible and shall have openings packed with fiberglass.

B. The Electrical Contractor shall inform himself of wall thickness throughout the building and shall provide outlet boxes of suitable depth that can be flush mounted and yet will be deep enough to contain the particular apparatus involved. The location of exposed pull or junction boxes will be subject to the Architect's approval.

C. Outlets from which lights are suspended shall have approved 3/8" fixture studs fastened through from back of box. All outlet boxes and particularly those supporting fixtures shall be securely anchored in place in an approved manner. Support outlet boxes and fixtures in acoustic ceiling areas from building structures, not from acoustic ceilings. All lighting fixture outlets shall be coordinated with mechanical, architectural, or other equipment to eliminate conflicts and provide a workable, neat installation.

D. Where more than one switch occurs at the same location, use multiple gang outlet boxes covered by a single plate; provide box partitions as required by the C.E.C. Switches controlling

lights and/or outlets on emergency power shall be kept entirely independent of all other switches not on emergency power by mounting in a separate box.

E. Outlet box extensions shall be UL listed and shall be attached to box with threaded metal screws. “Flash guards” are not permitted to be used as box extensions.

3.04 LOCATIONS OF OUTLETS

A. The Architect reserves the right to make reasonable changes in the indicated locations before work is roughed in without additional charge to the Owner.

B. Where wainscot occurs at the 4’-6” level, the switch shall be mounted lower in the wainscot as near the 4’-0” level as possible, but in no case, shall the switch be partially in the wainscot and partially in the wall. It shall be the Electrical Contractor’s responsibility to verify all door swings. Switches, unless specifically noted, shall be on the strike side of the door. If switch is indicated on hinged side of door, verify location with Architect.

3.05 CONDUCTOR IDENTIFICATION AND INSTALLATION

A. The drawings indicate the arrangement of outlets on each branch circuit and the circuit tags show the number of the circuit, and the board to which it will be connected.

B. Circuits indicated with the same numbers shall be connected to the same breaker on the panelboard.

C. All feeders and branch circuits shall be tagged in all pull boxes and in the gutters of all panels to which they connect.

D. All wiring shall be done in identified neutrals.

E. No wire shall be installed until all work of other contractors that might cause injury to the said wire has been completed. Care shall be used to pull wires to ensure that no damage occurs to the insulation. A wire lubricant shall be used for pulling in wires.

F. In making the connection of all branch circuits to the terminals of switches, base plugs, etc., the wires shall be looped around the binding screws or be fitted with connecting lugs. At the ceiling outlets, this Contractor shall leave not less than 6” of free ends on each wire for connections to the fixtures.

G. No splices shall be permitted except in outlet boxes, and in panelboard gutters.

H. Switches and receptacles shall be securely fastened to the outlet box. Where the outlet box covers are back of the finished walls the switch or receptacle shall be built out from the same with washers so that it is rigidly held in place to the box. The floating of any switch or receptacle will not be permitted.

I. All signal and communications conductors shall be identified in terminal cabinets as to type of system e.g.: clock, bell, fire alarm, etc. and location of other end of conductor by room number or name as directed by Owner. Identification shall be by numbers at terminal strips and a numbered directory in cardholder inside terminal cabinet.

J. Fire alarm system cabling and wiring shall be color-coded as follows:
   1. Initiating Devices: Addressable cable, red jacket.
   2. Signaling Devices: Black and Red wires for horns, strobes or horn strobes.
   3. Speaker cable, blue jacket for speakers.

K. All power wiring size #6 AWG and smaller, shall be factory color-coded. For larger than #6, mark conductors on each end and at all junction and/or pull boxes with a 1” bank of colored pressure-sensitive plastic tape. For isolated ground wires, mark with a 1” band of green tape, followed by a 1” band of yellow tape, followed by a 1” band of green tape. Colors for each phase and the neutral shall be consistent throughout the system. Color code shall be as follows:

L. The white or gray conductor shall be the neutral at each outlet. All switches shall be installed in “hot” leg. On all lighting circuits the switch leg shall be purple from switch to fixture. All

travelers from switch to switch on 3 and 4-way switches shall be pink. This color code shall be followed by Contractor for all fixture whips except for factory-manufactured whips. When factory manufactured whips are used, color code shall apply to all wiring except the factory whip.

M. Conductors having white, gray or green covering shall not be used to indicate anything other than neutral or grounding. This limitation applies to all power, lighting, and control circuits.

N. Installation of conductors shall be made in a neat and workmanlike manner to meet Code requirements and shall be run continuous without weld, splice or joint between boxes. Do not install wires in conduit unless the entire system of conduit and outlet boxes is permanently in place. All conductors shall be pulled using a UL approved wire lubricant.

O. Make all terminations at motors using 3M Series 5300 Motor Lead/Cable Splicing Kits. Make connections per 3M written installation procedures.

P. On all bolted electrical connections, the Contractor shall use Belleville washers.

Q. All wiring to be neatly bundled and tied with nylon cord or plastic straps.

R. When approved by the Electrical Engineer, splices in underground pull boxes shall be made with crimp on compression connectors and insulated with heat shrink sleeves or with splice kits listed by the manufacturer for wet locations. Wire nuts are not permitted. Cables and/or conductors for fire alarm and signals systems shall not be spliced.

3.06 GROUNDING

A. The conduit system supports, cabinets, switchboards, etc., and neutral conductors must be permanently and effectively grounded, in accordance with Title 24 of the California Code of Regulations. The neutral shall only be grounded at the main service location unless specifically noted otherwise on the drawings or required by the California Electrical Code.

B. This Contractor shall exercise every precaution to obtain good contacts at all panel boxes, pull boxes, etc.: where it is not possible to obtain good contacts, the conduits shall be bonded around the boxes with a #6 AWG gauge conductor with ground clamps.

C. All equipment cases, motor frames, etc. shall be completely grounded to satisfy applicable code requirements.

D. At each building, the interior hot and cold-water piping and the interior aboveground gas piping shall be bonded to the building service equipment per C.E.C. #250.104.

E. Do not use underground gas piping as a grounding electrode.

F. Pull a green equipment ground conductor in all power conduits, both metallic and non-metallic.

G. Pull a separate isolated ground wire to isolated ground receptacles, insulated green with yellow stripe, in addition to the equipment ground conductor.

H. Isolated ground conductor shall begin at the isolated ground bus in the panel in the building served and shall not be connected to any neutral conductor or any item not isolated from the system ground. All isolated ground circuits shall have a separate neutral conductor (not used for more than one circuit). The isolated ground conductor cannot extend upstream from the building served.

I. Each disconnect switch shall have a ground connector (lay in wire type) which shall be used for grounding the disconnect enclosure. The ground wire shall continue and be connected to the enclosure of the equipment served.

J. Where there is more than one building supplied from a common service, provide a grounding electrode at each building per C.E.C. #250.32.

K. At each telephone backboard and/or data backboard, provide a power distribution block (one pole with two primary openings and six secondary openings) and mount at + 18” A.F.F. unless otherwise noted. Run ¾”C - 1 #6 AWG to the ground bar of the nearest panel or the ground

bus of the main switchboard. Power distribution block shall be Square D #LBA 163206 or equal.

3.07 MOUNTING HEIGHTS OF EQUIPMENT

A. A. Unless otherwise specified elsewhere or shown on the plans, the following mounting shall apply:
   1. Panelboards: 6'-0" top of box
   2. Disconnect Switches: 4'-0" to center line
   3. Contactors: 4'-0" to center line

3.08 IDENTIFICATION OF SWITCHES AND APPARATUS

A. All switchboard circuits, externally operated switches and apparatus used for the operation of or control of circuits, appliances, or equipment shall be properly identified with an engraved Bakelite nameplates, 1" x 3", black letters on white background. All such nameplates shall be of the self-adhesive type and attached onto the apparatus by screws or rivets. Card holders in any form are not acceptable.

3.09 EARTHQUAKE PROOFING OF LIGHT FIXTURES

A. Fixtures weighing more than 50 pounds shall be supported independently of the outlet box.

B. Pendant type fixtures shall be designed so that they may swing horizontally in any direction a minimum of 45 degrees from the vertical. Pendant shall have ball aligner at top, and swivel connection at fixture. If there is an obstruction within the 45 swing of the fixture the Contractor shall provide a State approved restraint to keep fixture from swinging into the obstruction.

C. All fixtures mounted in or on suspended ceilings shall be fastened to the ceiling-framing members in accordance with C.E.C. #410.36(B). Recessed fixtures in t-bar ceilings shall be provided with integral t-bar clips, one near each corner to attach it to the t-bar ceiling frame.

D. Recessed fixtures in T-bar ceilings shall be attached to the building structure above with #12 Ga. slack safety wire at two diagonal corners of each fixture (two wires per fixture).

3.10 FIRE RATED AREAS

A. Where light fixtures, conduit, cabinets, or boxes penetrate fire rated ceilings, walls or floors provide a fire rated enclosure or fire stop. Rating of enclosure or fire stop shall match or exceed rating of area penetrated. Verify location of fire rated areas with architectural drawings and with General Contractor.

B. Where outlet boxes are recessed on opposite sides of a fire rated wall, boxes shall be separated by a horizontal distance of at least 24 inches. Where the wall opening for a steel electrical outlet box exceeds 16 sq. inches in area, or an aggregate of more than 100 sq. inches for any 100 sq. feet of wall or partition area, fire stopping is required.

C. C. Penetrations in walls, floors or ceilings requiring protected openings shall be fire-stopped.

D. Fire-stopped shall be of an approved material, securely installed and be in conformance with the 2025 C.B.C., Section 714.3.1 and 714.3.2.

E. All required fire-stopping and joint sealants as a result of the work in Divisions 26, 27 and 28 is the responsibility of each individual trade. Refer to Sections 07 8400 and 07 9210, respectively.

3.11 MISCELLANEOUS EQUIPMENT

A. Contractor shall be responsible for electrical hook up and connections to all electrical equipment whether furnished by this Contractor or others, including wiring, conduit, disconnects, circuit breakers etc., even if not shown on drawings. Verify all locations and requirements with equipment supplier before rough-in.

B. When there are fire sprinklers, the Electrical Contractor shall connect bell, flow and tamper switches and other electrical devices as required by Sprinkler Contractor and local and state fire marshal. Verify requirements with General Contractor before bid.

3.12 INTERRUPTION OF SERVICE

A. Interruption of service in existing buildings shall not be made at a time which will inconvenience the Owner. Before making any final connections to the existing buildings or doing any other work that will interrupt the service, the Contractor shall consult with the Owner and schedule the work at Owner's convenience even if it is necessary to make such connections after regular working hours.

B. This Contractor shall do all rerouting and reconnecting of existing electrical facilities made necessary by this construction. Care shall be taken not to disrupt existing facilities. If any facilities are disrupted, this Contractor shall replace or repair them at his expense and to the satisfaction of the Architect.

3.13 CHANGES

A. Electrical Contractor shall consider the number of outlets for electric equipment shown on plans as final, but the Architect reserves the right to shift same, within reason, to a location and position which will meet more completely final requirements.

3.14 GUARANTEE AND TESTS

A. All electrical equipment testing, and related costs shall be included in the Contractor's bid.

B. Contractor shall obtain approval from the Architect of proposed independent testing agencies before any testing is started.

C. Equipment of all kinds installed by this Contractor shall be tested to determine whether it fulfills the requirements of these specifications. The Contractor shall furnish all labor necessary to adjust the operation of the apparatus and make the connections for the tests. After the tests have been completed, the Contractor shall restore all connections, apparatus, etc., to their original condition.

D. Should any piece of apparatus or any material or work fail in any of these tests, it shall be immediately removed and be replaced with new material by this Contractor at his expense and the portion of the work replaced be again tested by the Contractor.

E. All circuit breakers, 100 amps or more, shall be tested by an independent testing agency in accordance with NETA specifications and a report submitted to the Architect. Any circuit breaker that does not pass the test shall be replaced.

F. The entire installation shall be free from short circuits and improper grounds. Panels and circuits shall be tested for grounds and shorts. Each individual circuit shall be tested at the panel with the equipment connected for proper operation. Ground tests shall meet the requirements of the California Electrical Code. Upon completion of the work, a final inspection by the Architect and other interested authorities shall be conducted. This Contractor shall guarantee to repair or replace at his expense any material or equipment that develops defects or is determined not to be in conformance with the plans and specifications, during a period of one year after work is accepted by the Owner.

G. The grounding electrode system at the main electrical service equipment shall be tested by an independent testing agency in accordance with the three-point fall of potential method as specified in IEEE Standard 81-1983. Maximum ground resistance shall be 25 OHMS. A copy of the test report shall be submitted to the Architect and Engineer of record.

H. All feeder cables #2 and larger shall be tested for insulation resistance. Test report must include number of cable per phase & type of cable insulation.

I. Three copies of the test report shall be submitted to the Electrical Engineer prior to the final job walk.

J. The independent testing agency performing the above-mentioned tests shall be NETA or NICET certified or approved by the electrical engineer.

3.15 GROUND FAULT SYSTEMS TEST PROCEDURE (TESTS REQUIRED FOR 480V MAIN DISCONNECT)

A. Visual and Mechanical Inspection: VISUAL AND MECHANICAL INSPECTION:
   1. Inspect for physical damage and compliance with plans and specifications.
   2. Inspect neutral main bonding connection to assure:
      a. Zero sequence sensing system is grounded.
      b. Ground strap sensing systems are grounded through sensing device.
      c. Ground connection is made ahead of neutral disconnect link on zero sequence sensing system.
      d. Grounded conductor (neutral) is solidly grounded.
   3. Inspect control power transformer to ensure adequate capacity for system.
   4. Monitor panels (if present) shall be manually operated for:
      a. Trip test
      b. No trip test
      c. Non-automatic reset
   5. Proper operation and test sequence shall be recorded.
   6. Inspect zero sequence systems for symmetrical alignment of core balance transformers about all current carrying conductors.
   7. Verify ground fault device circuit nameplate identification by device operation.
   8. Set pickup and time delay settings in accordance with the project Electrical Engineer's provided settings.

3.16 ELECTRICAL TESTS

A. Measure system neutral insulation resistance to ensure no shunt ground paths exist. Remove neutral-ground disconnect link. Measure neutral insulation resistance and replace link.

B. Determine the relay pickup current by primary injection at the sensor and operate the circuit-interrupting device.

C. Test the relay timing by injecting one hundred fifty percent (150%) and three hundred percent (300%) of pickup current, or as specified by manufacturer.

D. Test the system operation at fifty-seven percent (57%) rated voltage.

E. Test zone interlock systems by simultaneous sensor current injection and monitoring zone blocking function.

3.17 TEST PARAMETERS

A. System neutral insulation shall be a minimum of one hundred (100) ohms.

B. Relay pickup current shall be set to a value between 20% and 25% of the rating of the main circuit breaker. The setting shall be the in-service setting unless otherwise specified.

C. Relay time delay shall be the closest possible calibrated setting to .1 seconds. This shall be the in-service setting unless otherwise specified.

3.18 DEMOLITION

A. Remove and/or relocate electrical facilities as required to clear areas for new construction.

END OF SECTION

SECTION 28 4600
FIRE DETECTION AND ALARM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire alarm system and associated components, including control unit, related equipment, initiating devices, interface modules, and notification appliances.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping.

B. Section 07 8700 - Smoke Containment Barriers: Smoke/fire curtains for interface with fire alarm system.

C. Section 08 3323 - Overhead Coiling Doors: Coiling fire doors for interface with fire alarm system.

D. Section 26 0526 - Grounding and Bonding for Electrical Systems.

E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ISO 9001 - Quality Management Systems — Requirements; 2015, with Amendment (2024).

C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

NFPA 72 - National Fire Alarm and Signaling Code; Most Recent Edition Cited by Referring Code or Reference Standard.

D. UL 268 - Standard for Smoke Detectors for Fire Alarm Systems; Current Edition, Including All Revisions.

E. UL 464 - Standard for Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories; Current Edition, Including All Revisions.

F. UL 521 - Standard for Heat Detectors for Fire Protective Signaling Systems; Current Edition, Including All Revisions.

UL 864 - Control Units and Accessories for Fire Alarm Systems; Current Edition, Including All Revisions.

G. UL 1449 - Standard for Surge Protective Devices; Current Edition, Including All Revisions.

H. UL 1971 - Standard for Signaling Devices for the Hearing Impaired; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for products, including ratings, configurations, standard wiring diagrams, dimensions, finishes, service condition requirements, and installed features.

C. Manufacturer's qualification statement.

D. Manufacturer's certification that products meet or exceed specified requirements.

E. Inspection and Test Reports:
   1. Installer to submit inspection and test plan prior to closeout demonstration.

2. Installer to submit NFPA 72 "Record of Inspection and Testing" forms, filled out by installer.

F. Installer to submit NFPA 72 "Record of Completion" forms, filled out completely by installer and signed by Owner and authorized representative of AHJ.

G. Operation and Maintenance Data:
1. Include detailed information on system operation, equipment programming and setup.
2. Include manufacturer's preventive maintenance recommendations.
3. Other data as defined in NFPA 72 chapter "Inspection, Testing, and Maintenance."

H. Project Record Documents:
1. Submit complete project record drawings within 14 calendar days after acceptance test.
2. Provide record drawings similar to shop drawings, but revised to reflect changes made during construction.

1.05 QUALITY ASSURANCE

A. Comply with the following:
1. California State Fire Marshal (CSFM) and Requirements of DSA.
2. Applicable local codes.
3. ADA Standards.
4. NFPA 70.
5. NFPA 72.

B. Manufacturer Qualifications: Certified for compliance with ISO 9001.

C. Installer Qualifications:
1. Company with minimum three years documented experience with similar fire alarm systems and providing contract maintenance service as regular part of their business.
2. Familiar with products to be installed through documented manufacturer training, authorization, or equivalent demonstrated experience.
a. Gamewell-FCI Basis of Design System: Specialized training as provided by Gamewell-FCI Premier representative.
3. Installer Personnel: At least three years experience installing fire alarm systems.
4. Supervisor: State licensed and NICET Level III certified fire alarm technician.
5. Licensed electrical or systems contractor in the State in which the Project is located.

D. Product Evaluation and Listing Organization Qualifications: All Fire Alarm devices must hold current CSFM Listing.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Alarm Control Unit existing to remain. Gamewell-FCI E3 Series by Honeywell; https://buildings.honeywell.com/us/en/brands/our-brands/gamewell-fci/#sle.

B. Source Limitations: Where possible, furnish system components and accessories produced by one manufacturer and obtained from one supplier, U.O.N.

2.02 FIRE ALARM SYSTEM INITIATING DEVICES

A. General Requirements:
1. Addressable Devices: Individually identifiable by addressable FACU; suitable for connection to FACU SLCs. Provide address-setting means on device using rotary switches with simple numerical indicators. Devices which require proprietary tools or dip switches to address device will not be accepted.
2. Conventional (Nonaddressable) Devices: Provide addressable monitor modules or two-wire detector zone modules (See "Addressable Interface Modules" article for Basis of Design Products) as indicated or as required for connection to addressable FACU. Unless devices are explicitly permitted to be connected together as one zone, provide separate

addressable monitoring point for each device in order to be individually identifiable by addressable FACU.

3. Provide devices and associated accessories suitable for intended application and location to be installed. Unless otherwise indicated, use addressable devices and addressable monitor modules only in clean, dry, indoor, nonhazardous locations.
4. Surface-Mounted Devices: Provide manufacturer's accessory surface mount backboxes or suitable outlet/device box.
5. Devices for Outdoor and Damp/Wet Locations: Weatherproof, suitable for outdoor use; provide manufacturer's accessory backboxes and enclosures in accordance with product listing.
6. Devices for Hazardous (Classified) Locations: Listed and labeled as suitable for classification of installed location.

B. Spot-Type Detectors:
1. Addressable Detectors:
a. Comply with "General Requirements for Addressable Devices."
b. Provide LED indication of normal operation/regular communication with FACU condition.
c. Furnished with output for remote LED alarm indicator.
d. Utilizes plug-in mounting to separate base with tamper-resistant feature; compatible with available sounder, relay, and isolator bases; provide base as indicated or as required.
e. Addressable Smoke Detectors: Capable of providing data to FACU representing analog levels detected.
2. Smoke Detectors:
a. Listed and labeled as complying with UL 268.
b. Use photoelectric (light-scattering) principal to measure smoke density.
3. Thermal (Heat) Detectors:
a. Listed and labeled as complying with UL 521.
b. Provide fixed thermal sensor which activates at 190 degrees F.
4. Detector/Base Color: White, unless otherwise indicated.
5. Basis of Design Products:
a. Smoke Detectors:
1) Gamewell-FCI Model ASD-PL3 addressable smoke detector, indoor rated, photoelectric, integral drift compensation, self-diagnostics, transient rejection, local test via application of external magnet.
b. Thermal (Heat) Detectors:
1) Gamewell-FCI Model ATD-L3H addressable thermal detector, indoor rated, fixed temperature, 190 degrees F, RTI rating of QUICK or better, local test via application of external magnet.
c. Bases for Addressable Detectors:
1) Gamewell-FCI Model B300-6 Series standard base, flanged low-profile.

2.03 FIRE ALARM SYSTEM INTERFACE MODULES

A. Fire alarm system accessory equipment listed and labeled as complying with UL 864.

B. Provide addressable interface modules as indicated or required for fire alarm and nonfire alarm interfaced systems.

C. Individually identifiable by addressable FACU; suitable for connection to FACU SLCs. Provide address-setting means on device using rotary switches with simple numerical indicators. Devices which require proprietary tools or dip switches to address device will not be accepted.

D. Provide addressable modules suitable for connection to FACU SLCs.

E. Unless otherwise indicated, use addressable modules only in clean, dry, indoor, nonhazardous locations.

F. Addressable Monitor Modules: Unless devices are explicitly permitted to be connected together as one zone, provide separate addressable monitor module for each conventional dry-contact input device in order to be individually identifiable by addressable FACU.

G. Addressable Control Modules: Provide as indicated or as required for selective control of notification appliances.

H. Addressable Relay Modules: Provide as indicated or as required to perform necessary functions via dry-contact interface. Where load exceeds module contact rating, provide accessory power isolation relays suitable for load as required.

I. Basis of Design Products:
   1. Addressable Control Modules:
      a. Gamewell-FCI Model AOM-2SF addressable control module; single supervised control output, Class A or Class B, suitable for controlling 24 VDC NAC and speakers up to 70.7 Vrms; requires separate power; uses single module address on SLC; mounts to nominal 4-inch square or 2-gang box, includes white finish cover.

2.04 FIRE ALARM SYSTEM NOTIFICATION APPLIANCES

A. Notification Appliances - General Requirements:
   1. Provide signaling devices listed for fire-protective service and intended operating mode (public or private); suitable for connection to FACU notification NAC.
   2. Provide addressable control modules as indicated or as required for selective control of notification appliances.
   3. Provide notification appliances and associated accessories suitable for intended application and location to be installed. Use notification appliances only according to listed mounting (i.e., ceiling or wall mounted).
   4. Surface-Mounted Notification Appliances: Provide manufacturer's accessory surface mount backboxes or suitable outlet/device box.
   5. Notification Appliances for Outdoor and Damp/Wet Locations: Weatherproof, suitable for outdoor use; provide manufacturer's accessory backboxes and enclosures in accordance with product listing.
   6. Notification Appliance Derating: Account for device derating adjustments in accordance with listing where applicable, including but not limited to the following.
      a. Where accessory protective guards, and enclosures are utilized.
      b. Where required by field conditions (e.g., ambient temperature).
   7. Notification Appliances Colors:
      a. See mounting configuration indicated by floor plan drawing symbols.
      b. Wall-Mounted: Red.
      c. Ceiling-Mounted: Red.

B. Visible Notification Appliances:
   1. Public Mode Operation: Listed and labeled as complying with UL 1971.
   2. Strobes: Clear or nominal white lens with flash rate of 1 Hz unless otherwise indicated or required; xenon light source with maximum pulse duration of 0.2 seconds; candela rating as indicated.

C. Audible Notification Appliances:
   1. Listed and labeled as complying with UL 464.
   2. Rated Sound Pressure Level: As required to achieve design sound pressure levels, but not less than 75 dB(A) at 10 feet for public mode operation or 45 dB(A) at 10 feet for private mode operation in accordance with UL 464.
   3. Horns: Selectable tone, including at minimum NFPA 72-compliant temporal 3 pattern and continuous; minimum of two selectable volume levels.

D. Combination Notification Appliances: Comply with respective requirements for each signaling method.

E. Basis of Design Products:
   1. Strobes: System Sensor, as indicated on drawings.
      a. System Sensor Model SRL strobe, indoor rated, wall-mounted, red, selectable candela output (15, 30, 75, 95, 110, 135, 185 at 24 VDC nominal).
   2. Horns: System Sensor, as indicated on drawings.
      a. System Sensor Model SPK-R/WTP-SP horn, weatherproof (includes backbox), wall-mounted, red.
   3. Horn/Strobes: System Sensor, as indicated on drawings.
      a. Gamewell-FCI Model SPSRL horn/strobe, indoor rated, wall-mounted, red, selectable candela output (15, 30, 75, 95, 110, 135, 185 at 24 VDC nominal).

2.05 FIRE ALARM SYSTEM ACCESSORIES

A. Cables for Network Connections:
   1. Comply with manufacturer's minimum requirements.

B. Fire Alarm System Documents and Software Cabinet:
   1. Provide fire alarm document (FAD) cabinet with size as indicated or as required.
   2. Cabinet: Steel with red finish; permanently identified with text "FIRE ALARM SYSTEM DOCUMENTS"; keyed to match fire alarm system equipment; include fixed integral minimum 2 GB flash drive for electronic storage of system documents and system database program.

C. Terminal Cabinets:
   1. Provide terminal cabinets with quantity of termination points as indicated or as required for application.
   2. Cabinet: Steel, with red finish; permanently identified with text "FIRE ALARM TERMINAL CABINET"; keyed to match fire alarm system equipment.
   3. Terminal Strips: Rated for 20 A at 250 VAC; terminal points rated for 12 AWG conductors.

D. Surge Protection:
   1. Line Voltage Surge Protection: UL 1449 listed; provide for each line voltage circuit that supplies operating power for fire alarm system control equipment (e.g., FACU, field booster panels, nodes, and transponders).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that areas and surfaces are ready to receive fire alarm system.
   1. Notify Architect of conditions that would adversely affect installation or subsequent use.
   2. Do not begin installation until unacceptable conditions are corrected.

B. Verify that circuit wiring installation is completed, tested, and ready for connection to system where applicable per conductor requirements of NFPA 72 tables located in chapter "Inspection, Testing, and Maintenance."

3.02 INSTALLATION

A. Install products in accordance with NFPA 72, NFPA 70, state and local codes, manufacturer's instructions, and as indicate on drawings.

B. Install products in accordance with applicable requirements of NECA 1 (general workmanship).

C. Adjust selectable candela strobes to rating indicated on design documents.

D. Provide grounding and bonding in accordance with manufacturer's recommendations; see Section 26 0526.

E. Install firestopping to preserve fire resistance rating of partitions and other elements; see Section 07 8400.

F. Identify system wiring, components, and overcurrent protective devices for branch circuits serving fire alarm system; see Section 26 0553.

G. Conceal conduit, junction boxes, and conduit supports and hangers in finished areas. Conceal or expose conduit, junction boxes, and conduit supports and hangers in unfinished areas; maintain all code required access.

H. Do not install smoke detectors before system programming and test period. If construction is ongoing during this period, take measures to protect smoke detectors from contamination and physical damage.

I. Mount fire detection and alarm system devices, control panels, and remote annunciators flush or surface as indicated.

J. Ensure installation locations of devices and notification appliances are in accordance with local codes, standards, and Ensure manual stations are suitable for surface mounting or semi-flush mounting as indicated on drawings. Install not less than 42-inches, nor more than 48-inches, above finished floor measured to operating handle.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Perform initial and acceptance inspection and testing in accordance with NFPA 72 and requirements of AHJ; document each inspection and test.

C. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

D. Leave fire alarm system in working order and, without additional expense to Owner, replace defective materials and equipment provided within one year from date of final acceptance by Owner.

3.04 CLEANING

A. See Section 01 7419 - Construction Waste Management and Disposal for additional requirements.

B. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 CLOSEOUT ACTIVITIES

A. See Section 01 7800 - Closeout Submittals for closeout submittals.

END OF SECTION

SECTION 31 1000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Clear and grub the site as shown on the Drawings and specified in this Section.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 31 2000: Earthwork.
3. Section 02 4100: Selective demolition.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide materials, not specifically described but required for proper completion of the work of this Section, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PROTECTION

A. Protect existing utilities indicated or made known.

B. Protect trees and shrubs, where indicated to remain, by providing a fence around the tree or shrub of sufficient distance away and of sufficient height so trees and shrubs will not be damaged in any way as part of this Work.

C. Protection of persons and property:
1. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations under this Section.
4. Barricade and post or backfill all open trenches outside of fenced areas when not on job site.

D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain access to the site at all times.

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3.3 CLEARING

A. Prior to earthwork operations, strip entire site of vegetation, organic topsoil. Clear surface and subsurface obstructions and miscellaneous debris from the proposed building, exterior concrete, and paving areas.
   1. Stripping: Approximately 4" deep. The actual depth of stripping will be reviewed by the responsible inspecting Geotechnical Engineer.

B. Clear organic matter, vegetation, rubbish, debris, and loose soil deposits from the banks and bottoms of the irrigation canal and ditch.

3.4 CONSERVATION OF TOPSOIL

A. Stockpile the stripped organic topsoil in an area clear of new construction in order to provide topsoil for areas shown on the Drawings to be turfed or planted, and to fill planters, without contamination with subsoils.

B. Maintain the stockpile in a manner which will not obstruct the natural flow of drainage.
   1. Maintain stockpile free from debris and trash.
   2. Keep the topsoil damp to prevent dust and drying out.

3.5 DISPOSAL

A. Remove brush, grass, roots, trash, and other material from clearing operations. Dispose of away from the site in a legal manner.

B. Do not store or permit debris to accumulate on the job site.

C. Dispose of any excess topsoil after fine grading has been accepted by the Architect.

D. Do not burn debris at the site.

E. Excavated Soils and Land Clearing Debris: 100% of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled, except for reuse, either on site or off site of vegetation or soil contaminated by disease or pest infestation.

   1. Refer to Section 01 7425.

3.6 UTILITIES

A. Coordinate with utility companies and agencies as required. See Section 02 3100.

B. Where utility cutting, capping, or plugging is required, perform such work in accordance with requirements of the utility company or governmental agency having jurisdiction.

END OF SECTION 31 1000

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SECTION 31 2000 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. In accordance with pertinent provisions of this Section, trench, excavate, fill, backfill, compact, and grade the site to the elevations shown on the Drawings and as needed to meet the requirements of the construction shown in the Contract Documents.

B. The work of this Section includes, but is not limited to, the following:
1. Preparation of sub-grade for buildings, walks, pavements, and landscaping.
2. Site grading, cut, fill, and finish, off-haul or import of soil necessary to meet finish grades indicated on the Drawings.
3. Excavation, backfill and compaction for filling construction and trenches.

C. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 00 3100: Geotechnical data.
3. Section 01 4520: Testing and inspection requirements.
4. Section 01 5725: Storm Water Pollution Protection Plan.
5. Section 01 7120: Field engineering.
6. Section 22 0000: Excavation and backfill for plumbing work.
7. Section 26 6000: Excavation and backfill for electrical work.
8. Section 31 1000: Site clearing, removal and storage of top soil.
9. Section 31 3115: Termite control.
10. Section 31 3215: Lime soil stabilization.
11. Section 31 4300: Compaction grouting.
12. Section 31 4510: Vibro-replacement.
13. Section 32 9000: Top soil amendments and soil preparation for plantings.
14. Section 32 9000: Soil mix for baseball infield and running track.

1.2 QUALITY ASSURANCE

A. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

B. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the geotechnical engineer.

C. Verify all grade and trench elevations as specified in Section 01 7120.

D. All improvements within property owned by a City, County or State Entity shall be in accordance with the Standard Specifications of the authority having jurisdiction.

1.3 TRENCHING AND EXCAVATION SAFETY

A. All trenches and excavation in excess of 4'-0" in depth and areas of visibly unstable soils shall be shored or otherwise stabilized in conformance with current local or state codes, ordinances and requirements. In addition, the Contractor shall notify the Owner of suspected hazardous waste or other unusual physical conditions as provided by law.

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B. All open trenches and excavations outside the fenced construction area shall be properly barricaded for public and worker safety. Trenches shall be adequately covered or backfilled prior to ceasing work or leaving the work site.

C. Slope height, slope inclination, and excavation depths (including utility trench excavations) must in no case exceed those specified in local, state, or federal safety regulations, (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations).

1.4 EXISTING UTILITIES

A. Field verify the location of all existing underground utilities prior to beginning any earthwork. Work around and protect all existing utilities during the course of the Work. Raise or lower each existing utility box flush with new finish surface.

B. Where existing utilities are indicated on the drawings, extreme care shall be exercised in excavating near these utilities to avoid damage, and the Contractor will be held responsible for any damage caused by construction operations.

C. Should utilities not indicated on the drawings be found during construction, the Contractor shall promptly notify the Architect for instructions as to further action. Failure to do so will make the Contractor liable for any damage arising from construction operations after discovery of these utilities.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 SOIL MATERIALS

A. Fill and Backfill Materials: Fill shall consist of select material. Native soil, free from organic matter and rocks or cobbles larger than 3", may be used as fill at the site as follows:
   1. Satisfactory Soil Materials: Are defined as those complying with ASTM D2487 Soil Classification Groups GW, GP, GM, SM, SW, and SP.
   2. Unsatisfactory Soil Materials: are defined as those complying with ASTM D2487 Soil Classification Groups GC, SC, MH, ML, CL, CH, OL, OH, and PT.

B. Import Material: Import material, if required, shall consist of homogenous, non-corrosive, non-expansive, inorganic granular soils free of toxic materials and conforming to the following criteria:
   1. Gradation:
      a. 3" Sieve: 100% passing
      b. 3/4" Sieve: 80-100% passing
      c. No. 4 Sieve: 60-100% passing
      d. No. 200 Sieve: 20-50% passing
   2. Plasticity Index, ASTM D4318:
      a. Liquid limit: < 25
      b. Plasticity index: < 10
   3. Expansion Index: < 15

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4. Organic Content: < 3% by dry weight.
5. Minimum "R" Value (pavement area): 40
6. Corrosivity:
   a. pH: 6 to 8
   b. Minimum resistivity (ohm-cm): > 2,000
   c. Soluble sulfate (ppm): < 2,000
   d. Soluble chloride (ppm): < 500
7. Import fill material shall be approved by the geotechnical engineer prior to transport to the site and provided at no additional cost to the Owner.

C. Engineered Fill Materials:
   1. Satisfactory Soil Materials as defined in paragraph 2.2.A.1 above, or
   2. Import Material defined in 2.2.B above.

D. Sand for Utility Bedding: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.

E. Toxic Testing of Import Fill Material:
   1. The Contractor shall notify the Owner, Architect, and Testing Laboratory for the project, of the location and origin of all fill material intended for this project. Such notification shall be not less than 21 days prior to transport of the material.
   2. Both native and stockpile soils shall be subject to testing to determine suitability of the soil as related to toxic substances on school sites.
   3. The Owner will pay for only one passing test from one import source. Additional tests, and retests of failed material shall be paid by the Contractor.
   4. Should testing indicate toxic substances at levels above those acceptable on school sites by the State of California, Department of Toxic Substance Control (DTSC), the subject soil will not be permitted on the proposed school site.
   5. Any delay caused by materials found not to be compliant, shall not be accepted as justification for contract time extension or related claims.

2.3 TOPSOIL

A. Topsoil:
   1. Friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonably free from subsoils, roots, heavy or stiff clay, stones and gravel, noxious weeds, sticks, brush, litter, and other deleterious matter.
   2. Provide from stockpile developed on site as specified in Section 31 1000.

2.4 ACCESSORY MATERIALS

A. Utility Identification Tape: 2" wide metallic plastic material inscribed with caution message related to the buried utility below (i.e., **ELECTRICAL LINE BURIED BELOW, SEWER LINE BURIED BELOW**, etc.) by McMaster-Carr or approved equal.

B. Provide a dry, free-flowing, dust-free chemical compound, soluble in water, capable of inhibiting growth of vegetation, and approved for use on this Work by governmental agencies having jurisdiction.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

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A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FINISH ELEVATIONS AND LINES

A. Comply with pertinent provisions of this Section, Section 01 7120, and the Grading Plan.

3.3 DEWATERING AND WATER CONTROL

A. Water Control:
1. Establish and construct storm drainage features at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and/or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils.
2 Completely drain construction site during periods of construction to keep soil materials sufficiently dry.
3. Temporary excavations for the project construction should be left open only for as short a time as possible and should be protected from water runoff.

B. Dewatering:
1. Remove all water, including rain water, encountered during trench and substructure work to an approved location by pumps, drains, and other approved methods.
2. Keep excavations and site construction area free from water.
3. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
4. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations.
5. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from open excavations, unfinished fills, or other low areas to prevent softening of exposed surfaces.
6. Dispose of water away from the work in a suitable manner without damage to adjacent property or menace to public health.
7. Protect existing storm drain system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.

C. Unsuitable Soil Support: When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified.

3.4 DUST CONTROL

A. The San Joaquin Valley Air Pollution Control District regulates all dust control and emission standards throughout the Central Valley. Regulation VIII – Fugitive PM10 Prohibitions requires that a Dust Control Plan be completed for a large majority of construction projects.

B. This project is less than 5.0 acres, thus a Dust Control Plan is not required.

C. A Construction Notification form shall be submitted to the San Joaquin Valley Air Pollution Control District at least 48 hours prior to commencing any earthmoving activities. A copy of the Construction Notification form is provided at the end of this section.

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D. Whether a Dust Control Plan is required for the project or not, the Contractor shall be responsible for complying with the requirements of Rule 8021

3.5 PROCEDURES

A. Utilities:
1. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to the Owner.
2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
3. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Architect and secure his instructions.
5. Do not proceed with permanent relocation of utilities until written instructions are received from the Utility Company.

B. Protection of Persons and Property:
1. Barricade open holes and depressions occurring as part of this Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

C. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

D. Maintain access to adjacent areas at all times.

3.6 BORING

A. Provide mechanical boring equipment to bore under existing asphalt, concrete, or other surfaces or objects as noted on the drawings. All borings shall be a minimum of 24" under the substrate material unless otherwise authorized by the Architect.

B. Holes shall be bored not to exceed 1" larger diameter than the largest component remaining in the excavation.

C. **Water or air pressure jetting** are not permitted, unless they comply with the following requirements.
1. All surfaces of the hole can be visually inspected with 6' maximum length and,
2. All objects shall be supported continuously to prevent sagging and,
3. The hole shall be filled with compacted damp sand and inspected by the Project Inspector or Materials Testing Lab technician.

D. Comply with requirements of Section 01 7330.

3.7 SITE PREPARATION

A. Over-excavation and Preparation at Buildings:
1. After clearing, stripping and demolition activities, remove approximately 2 feet of unsuitable or uncompacted fill material in areas of planned structures. After fill removal, excavate native soils in areas of new building to a depth of 2'-0" below ground surface.

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2. At a minimum, include entire building areas, and extend at least 5'-0" beyond exterior footing line, including 5'-0" beyond exterior column footing edges.
3. Remove roots and other vegetation remaining in excavated area which are larger than ½" in diameter.
4. Scarify bottom of excavation to minimum depth of 6".
5. Prior to backfilling, the bottom of the excavation shall be proof-rolled and observed by the project Geotechnical Engineers to verify stability.
5. After project Geotechnical Engineer's approval of the subgrade surface, bring moisture conditions to or above optimum moisture content and compact excavated area to a minimum of 90% of maximum dry density; ASTM D1557. The upper 24 inches of the building pad area and 5 feet beyond structural elements shall consist of Engineered Fill.
6. Place engineered fill materials required to establish finish grade in lifts no greater than 6" loose depth and compact to a minimum of 90% of maximum dry density; ASTM D1557.

B. Over-excavation and Preparation at Pavement and Site Concrete flatwork areas:
1. After clearing, stripping and demolition activities, remove approximately 2 feet of unsuitable or uncompacted fill material in areas of planned pavement. After fill removal, excavate native soils in areas new pavement and concrete flatwork improvements to a depth of 1'-0" below ground surface.
2. At a minimum, include entire pavement and concrete areas, and extend at least 2'-0" beyond edges of improvements or up to existing improvements to remain.
3. Remove roots and other vegetation remaining in excavated area which are larger than ½" in diameter.
4. Scarify bottom of excavation to minimum depth of 6".
5. Bring moisture conditions to or above optimum moisture content and compact excavated area to a minimum of 90% of maximum dry density; ASTM D1557.
6. Place engineered fill materials required to establish finish grade in lifts no greater than 6" loose depth and compact to a minimum of 90% of maximum dry density; ASTM D1557.
7. Compact the top 12" of subgrade to a minimum of 95% of maximum dry density; ASTM D1557.

3.8 EXCAVATION

A. Perform excavation of every type of material encountered within the limits of the Work to the lines, grades, and elevations indicated and specified herein.

B. Earth excavation includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

C. Rock excavation in trenches and pits includes removal and disposal of materials and obstructions encountered which cannot be excavated with a 1.0 cubic yard (heaped) capacity, 42" wide bucket on a track-mounted power excavator equivalent to Caterpillar Model 215, rated at not less than 90 HP flywheel power and 30,000 lb. drawbar pull. Trenches in excess of 10'-0" in width and pits in excess of 30'-0" in either length or width are classified as open excavation.

D. Surplus Materials: Dispose of unsatisfactory excavated materials, and surplus satisfactory excavated material, away from the site at disposal areas arranged and paid for by the Contractor.

E. Additional Excavation: When excavation has reached required subgrade elevations, notify Architect who will make an inspection of conditions. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Architect/Engineer. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

F. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

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G. Unauthorized Excavation:
   1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific instruction from the Architect or the geotechnical engineer.
   2. Under footings, foundations, or retaining walls:
      a. Fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering the required top elevation.
      b. When acceptable to the geotechnical engineer, lean concrete (minimum 2000 psi) may be used to bring bottom elevations to proper position.
   3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the geotechnical engineer.

H. Benching Slopes: Horizontally bench existing slopes greater than 1:4 to key fill material to slope for firm bearing.

I. Stability of Excavations:
   1. Slope sides of excavation to comply with local codes and ordinances having jurisdiction.
   2. Shore and brace where sloping is not possible because of space restrictions or stability of the materials being excavated.
   3. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

J. Shoring and Bracing:
   1. Provide materials for shoring and bracing as may be necessary for safety of personnel, protection of work, and compliance with requirements of governmental agencies having jurisdiction.
   2. Maintain shoring and bracing in excavations regardless of the time period excavations will be open.
   3. Carry shoring and bracing down as excavation progresses.

K. Use of Explosives: **NOT PERMITTED**.

3.9 FILLING AND BACKFILLING

A. Backfill excavations as promptly as progress of the Work permits, but not until:
   1. Acceptance of construction below finish grade:
   2. Inspecting, testing, approving, and recording locations of underground utilities;
   3. Concrete formwork is removed;
   4. Shoring and bracing are removed, and voids have been backfilled with satisfactory materials;
   5. Trash and debris have been removed; and
   6. Horizontal bracing is in place on horizontally supported walls.

B. Placing and Compaction:
   1. Place backfill and fill materials in layers not more than 8" in loose depth.
   2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
   3. Compact each layer to required percentage of maximum density for the area.

C. Moisture Content:
   1. When the moisture content of fill material is below the lower limit specified by the Geotechnical Engineer, add water until the moisture content is as specified.
   2. When the moisture content of fill material is above the upper limit specified, the material shall be aerated by blading or other satisfactory methods until the moisture content is as specified.
   3. Do not place, spread, or compact fill while it is frozen or thawing or during unfavorable weather conditions. When work is interrupted by weather conditions, do not resume fill operations until moisture content and density of previously placed fill are satisfactory.

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4. Where soil has been softened or eroded by flooding, by placement during unfavorable weather, remove damaged areas and recompact as described for fill and compaction.
5. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
6. Where subgrade is spongy or pumping due to conditions beyond the Contractor's control, and aeration or other methods do not bring moisture content within specified levels, stop work and contact the Architect and Geotechnical Engineer for further direction.

3.10 TOPSOIL

A. Place topsoil to the following compacted thicknesses:
   1. Areas to be seeded: 6"
   2. Areas to be sodded: 4"
   3. Shrub beds: 18"
   4. Flower beds: 12"

B. Topsoil Placement:
   1. Where topsoil is to be placed, scarify surface to depth of 6".
   2. Place topsoil during dry weather.
   3. Remove roots, weeds, rocks, and foreign material while spreading.
   4. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
   5. Roll placed topsoil.

3.11 TRENCHING

A. Trenching:
   1. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
   2. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
   3. Do not interfere with 45 degree bearing splay of foundations.
   4. Cut trenches wide enough to allow inspection of installed utilities.
   5. Hand trim excavations. Remove loose matter.
   6. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
   7. Remove lumped subsoil, boulders, and rock up to 1.0 cu yd measured by volume.
   8. Remove excavated material that is unsuitable for re-use from site.
   9. Stockpile excavated material to be re-used in area designated on site in accordance with this Section 31 2000.
   10. Remove excess excavated material from site.

B. Preparation for Utility Placement:
   1. Cut out soft areas of subgrade not capable of compaction in place. Backfill with engineered fill.
   2. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
   3. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

C. Backfilling:
   1. Backfill to contours and elevations indicated using unfrozen materials.
   2. Employ a placement method that does not disturb or damage other work.
   3. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
   4. Maintain optimum moisture content of fill materials to attain required compaction density.
   5. Slope grade away from building. Make gradual grade changes. Blend slope into level areas.
   6. Correct areas that are over-excavated.

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7. Reshape and re-compact fills subjected to vehicular traffic.

D. Utility Installation: Install underground utilities according to the manufacturer's written recommendations. In addition to the manufacturer's recommendations, install underground utilities as follows:
1. Underground Utility Line Cover: No less than 12".
2. Bedding: Minimum of 6" compacted sand bedding under the pipe or conduit.
3. Envelope: Compacted sand extending 6" above and around the pipe or conduit.
4. Backfill Material: Remaining backfill material may consist of native soil or engineered fill material as described above.
5. Place and compact utility trench backfill in accordance with the requirements for engineered fill.

E. Utility Identification:
1. Utility Identification Tape: 2" wide metallic plastic material inscribed with a CAUTION message related to the buried utility.
2. Identify each utility pipe or conduit by the use of a continuous underground warning tape.
3. Locate tape 12" directly above the pipe or conduit, but not more than 12" below or not less than 6" below the finished grade.
   a. Where the top of the pipe or conduit exceeds 4'-0" below finish surface, locate one tape 12" directly above the pipe or conduit and one tape not less than 6" below the finished grade.
4. Provide one strip of identification tape for each 18" of trench width, horizontally.

3.12 GRADING

A. General: Uniformly grade the areas within limits of grading under this Section, including adjacent transition areas. Smooth the finished surfaces within specified tolerance.

B. Finish Grading Outside Building Lines:
1. Grade areas adjacent to buildings to achieve drainage away from the structures, and to prevent ponding.
2. Finish the surfaces to be free from irregular surface changes, and:
   a. Shape the surface of areas scheduled to be under walks to line, grade, and cross-section, with finished surface not more than 0.10 foot above or below the required subgrade elevation.
   b. Shape the surface of areas scheduled to be under pavement to line, grade, and cross-section, with finished surface not more than 0.10 feet above or below the required subgrade elevation.
   c. Shape finish grade adjacent to building to slope a minimum of 2% away from the exterior footings and wall, for a distance of 5'-0".

3.13 COMPACTION

A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D1557.

B. Moisture Control: Where subgrade or layer of soil material must be moisture-conditioned before compacting, uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.

C. Densities: Provide not less than the following maximum density of soil material compacted at each layer of soil material in place, and as approved by the geotechnical engineer.
1. **Buildings, Asphalt Paving and Site Concrete:** As specified in paragraph 3.7.
2. **Lawn and unpaved areas:** Compact the top 6" of subgrade and each layer of fill material or backfill material at 85% of maximum density;
3. **Trenches:** Provide a minimum of 6" of compacted sand bedding under pipe or conduit, and provide envelope extending 12" above pipe or conduit. Compact remaining backfill to 90% of maximum density except the

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upper 24" of those trenches located within structures, walks, and pavement areas which shall be compacted as specified in section 3.7.

3.14 FIELD QUALITY CONTROL

A. Secure the Geotechnical Engineer's inspection and approval of subgrades and fill layers before subsequent construction is permitted thereon.

B. The Owner's testing laboratory will provide at least the following tests:
   1. At paved areas, at least 1 field density/moisture test for every 10,000 sq. ft. of paved area, but not less than 3 tests.
   2. In each compacted underlying fill layer, 1 field density/moisture test for every 7,500 sq. ft. of overlaying paved area, but not less than 3 tests.
   3. In building areas, at least 1 field density/moisture test for every 2,000 sq. ft. of building coverage.
   4. At least 1 field density/moisture test per every 200 lineal foot of trench over 3'-0" of trench depth.

C. If, in the Geotechnical Engineer's opinion based on reports of the testing laboratory, subgrade or fills which have been placed are below specified density, provide additional compacting and testing under the provisions of Section 01 4520 of these Specifications.

END OF SECTION 31 2000

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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™
www.healthyairliving.com

San Joaquin Valley Air Pollution Control District
Regulation VIII – Fugitive PM10 Prohibitions

Construction Notification

Pursuant to section 6.4 of **District Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities***, the owner or operator of a construction project of at least 1.0 acre in size shall provide written notification to the District at least 48 hours prior to his/her intent to commence any earthmoving activities. Use the first two pages of this form to submit a written Construction Notification. There are no fees for filing a construction notification.

Larger construction projects, as outlined below, may be required to submit a full Dust Control Plan. If a Dust Control Plan is required the owner/operator does not need to submit a separate construction notification.

Dust Control Plan

Pursuant to section 6.3 of **Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities***, the owner or operator shall submit a Dust Control Plan to the District for a construction project that will involve any of the following:

- Residential developments that will include ten acres or more of disturbed surface area, or
- Non-residential developments that will include five acres or more of disturbed surface area, or
- Will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days of the project.

A Dust Control Plan identifies the fugitive dust sources at the construction site and describes all of the dust control measures to be implemented before, during, and after any dust generating activity for the duration of the project. The District will review and approve, conditionally approve, or disapprove the Dust Control Plan within 30 days of submittal. **Construction activities shall not commence until the Dust Control Plan has been approved or conditionally approved by the District.** A copy of the approved Dust Control Plan must be retained at the project site and made available upon request by a District inspector.

At least one key individual representing the owner or operator, or any person who prepares a Dust Control Plan must complete a Dust Control Training Course presented by the District. Please contact the District to find out when courses are being offered.

Pursuant to **District Rule 3135 – *Dust Control Plan Fee***, payment must accompany each Dust Control Plan submitted to the District. A separate fee is charged for any major modification made to an approved plan, such as modifying the size and scope of the project or making significant changes to the types of control or preventative measures. No fees are charged for administrative changes to an approved plan.

Regardless of whether a Construction Notification or Dust Control Plan is required, the owner or operator of any construction project shall comply with all other applicable requirements of Regulation VIII, and other District Rules.

Construction Notifications and Dust Control Plans should be submitted to the District's Compliance Division at:

San Joaquin, Stanislaus, Merced Counties	*Madera, Fresno, Kings Counties*	*Tulare, Kern Counties*

Northern Region Office	Central Region Office	Southern Region Office
4800 Enterprise Way Modesto, CA 95356 (209) 557-6400 Fax: (209) 557-6475	1990 East Gettysburg Avenue Fresno, CA 93726 (559) 230-5950 Fax: (559) 230-6062	34946 Flyover Court Bakersfield, CA 93308 (661) 392-5500 Fax: (661) 392-5585

Section 1 – General Information – Page 1

☐ **Construction Notification** (Complete section 1) ☐ **Dust Control Plan** (Complete sections 1-7)	Date Received: *(For District Use)*

1-A Project Name and Location

Project Name: _____

Project Address: _____

Major X-Streets: _____

City: _____ County: _____

GPS Coordinate(s): _____

Expected Construction Start Date: _____ End Date: _____

1-B Project Details

This project is: ☐ Residential ☐ Non-Residential (commercial, industrial, institutional, public, etc.)

Total project site area: _____ Acres

Total disturbed surface area: _____ Acres

Total disturbed areas that will be left inactive for more than seven days: _____ Acres

Maximum daily volume of earthmoving: _____ Cubic Yards

Average daily volume of earthmoving: _____ Cubic Yards

1-C Provide a brief description of the project's operations.

_____

1-D Indirect Source Review (ISR) (Rule 9510)

Air impact Assessment (AIA) application submitted to the District? ☐ Yes ☐ No

If yes, ISR Project ID #: _____

For more information regarding ISR, please visit www.valleyair.org/ISR/ISRHome.htm or contact the District's Technical Services team at (559) 230-6000.

Section 1 – General Information – Page 2

Project Name: _____

1-E Contacts

Property Owner: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

Developer: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

General Contractor: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

Other Contact: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

STOP HERE FOR CONSTRUCTION NOTIFICATION ONLY

Section 2 – Dust Control Plan Implementation – Page 1

Project Name: _____

2-A This Dust Control Plan was prepared by:

Name: _____ Title: _____

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

Date training completed: _____ ☐ Copy of course certificate attached.

2-B Contractors

Provide the names, addresses, and phone numbers of the contractors involved in dust generating activities **or** performing dust control as part of this project (Rule 8021 Sec. 6.3.6.1). A supplemental list may be attached.

1. _____

2. _____

3. _____

4. _____

2-C Who will have the primary responsibility for implementing this Dust Control Plan?

(Rule 8021 Sec 6.3.6.1)

☐ Property Owner ☐ Developer ☐ General / Prime Contractor

☐ Sub-Contractor(s) ☐ Other: _____

Primary Project Contact: _____

Title: _____

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

On-Site Phone: _____ Fax: _____

Mobile: _____ Email: _____

Date training completed: _____ ☐ Attach a copy of the course certificate

Section 2 – Dust Control Plan Implementation – Page 2

Project Name: _____

2-D Dust Generating Activity Dates

The expected start and completion dates of **dust generating activities and soil disturbance activities** to be performed on site. For phased projects, it may be necessary to report expected start and completion dates separately. (Rule 8021 Sec. 6.3.6.4)

Expected start date: _____ Completion Date: _____

Phase Project Start – A: _____ Completion – A: _____

Phase Project Start – B: _____ Completion – B: _____

Phase Project Start – C: _____ Completion – C: _____

2-E Other Locations

Identify whether any other locations should be included with this plan that are involved with this project. An example may include listing any site where bulk materials will be imported from or exported to. This does not need to include quarries or retailers of building materials. (Rule 8021 Sec. 6.3.2)

☐ No other locations are included with this project.

Location 1: _____

☐ No Dust Control Plan Required ☐ Included with this plan ☐ Included with another plan

Location 2: _____

☐ No Dust Control Plan Required ☐ Included with this plan ☐ Included with another plan

Location 3: _____

☐ No Dust Control Plan Required ☐ Included with this plan ☐ Included with another plan

Section 3 – Fugitive PM10 Sources – Page 1

Project Name: _____

3-A Sources of Fugitive Dust

This section describes the minimum requirements for limiting visible dust emissions from activities that cause fugitive dust emissions. (Rule 8021 Sec. 6.3.6.5) **Check at least one box under each category**.

Structural Demolition. (Rule 8021 Sec. 5.1, 6.3.3, & 6.3.6.5)

- ☐ No demolitions are planned for this project.
- ☐ Asbestos NESHAP notification and fees will be submitted to the District. (Rule 3050 and Rule 4002) Water will be applied to the following areas for the duration of the demolition activities:
  - Building exterior surfaces;
  - Unpaved surface areas where equipment will operate;
  - Razed building materials; and
  - Water or dust suppressants will be applied to unpaved surface areas within 100 feet of structure during demolition.

Pre-Activity (Rule 8021 Sec. 5.2)

- ☐ Not applicable for this project (Please explain why in Section 3-C).
- ☐ The site will be pre-watered and work will be phased to reduce the amount of disturbed surface area at any one time (Complete Section 4-A).

Active Operations (Rule 8021 Sec. 5.2)

- ☐ Water will be applied to dry areas during leveling, grading, trenching, and earthmoving activities (Complete Section 4-A).
- ☐ Wind barriers will be constructed and maintained, and water or dust suppressants will be applied to the disturbed surface areas (Complete Sections 4-A or 4-B, and 4-C).

Inactive Operations, Including After Work Hours, Weekends, and Holidays (Rule 8021 Sec. 5.2)

- ☐ Not applicable for this project (Please explain why in Section 3-C).
- ☐ Water or dust suppressants will be applied on disturbed surface areas to form a visible crust, and vehicle access will be restricted to maintain the visible crust. (Complete Section 4-A or 4-B, and 4-C)

Temporary stabilization of areas that remain unused for seven or more days (Rule 8021 Sec. 5.2)

- ☐ Not applicable for this project (Please explain why in Section 3-C)
- ☐ Vehicular access will be restricted and water or dust suppressants will be applied and maintained at all un-vegetated areas (Complete Section 4-A or 4-B, and 4-C).
- ☐ Vegetation will be established on all previously disturbed areas (Complete Section 4-C).
- ☐ Gravel will be applied and maintained at all previously disturbed areas (Complete Section 4-C).
- ☐ Previously disturbed areas will be paved (Complete Section 4-C).

Unpaved Access and Haul Roads, Traffic and Equipment Storage Areas (Rule 8021 Sec. 5.2 and 5.3)

- ☐ Not applicable for this project (Please explain why in Section 3-C)
- ☐ Apply water or dust suppressants to unpaved haul and access roads (Complete Section 4-A or 4-B)
- ☐ Post speed limit signs of not more than 15 miles per hour at each entrance, and again every 500 feet. (Complete Section 4-C)
- ☐ Water or dust suppressants will be applied to vehicle traffic and equipment storage areas (Complete Section 4-A or 4-B).

Wind Events (Rule 8021 Sec. 5.4)

- ☐ Water application equipment will apply water to control fugitive dust during wind events, unless unsafe to do so. Outdoor construction activities that disturb the soil will cease whenever visible dust emissions cannot be effectively controlled.

Section 3 – Fugitive PM10 Sources – Page 2

Project Name: _____

3-B Bulk Materials (Rule 8021 Sec. 6.3.6.6 and Rule 8031)

Outdoor Handling of Bulk Materials (Rule 8031 Sec. 5.0 A)

- ☐ No bulk materials will be handled during this project.
- ☐ Water or dust suppressants will be applied when handling bulk materials.
- ☐ Wind barriers with less than 50 percent porosity will be installed and maintained, and water or dust suppressants will be applied.

Outdoor Storage of Bulk Materials (Rule 8031 Sec. 5.0 B)

- ☐ No bulk materials will be stored during this project.
- ☐ Water or dust suppressants will be applied to storage piles.
- ☐ Storage piles will be covered with tarps, plastic, or other suitable material and anchored in such a manner that prevents the cover from being removed by wind action.
- ☐ Wind barriers with less than 50 percent porosity will be installed and maintained around the storage piles, and water or dust suppressants will be applied.
- ☐ A three-sided structure (< 50% porosity) will be used that is at least as high as the storage piles.

On-Site Transporting of Bulk Materials (Rule 8031 Sec. 5.0 C)

- ☐ No bulk materials will be transported on the project site.
- ☐ Vehicle speed will be limited on the work site.
- ☐ All haul trucks will be loaded such that the freeboard is not less than six inches when transported across any paved public access road.
- ☐ A sufficient amount of water will be applied to the top of the load to limit visible dust emissions.
- ☐ Haul trucks will be covered with a tarp or other suitable cover.

Off-Site Transporting of Bulk Materials (Rule 8031 Sec. 5.0 D)

- ☐ No bulk materials will be transported to or from the project site.
- ☐ Measures in section 5-B will be implemented to prevent haul trucks from becoming a source of visible emissions or carryout onto public roads. (complete Section 5-B)

Outdoor Transport using a Chute or Conveyor (Rule 8031 Sec. 5.0 E)

- ☐ No chutes or conveyors will be used.
- ☐ Chute or conveyor will be fully enclosed.
- ☐ Water spray equipment will be used to sufficiently wet the materials.
- ☐ Transported materials will be washed or screened to remove fines (PM10 or smaller).

3-C Comments

_____

Section 4 – Dust Control Methods – Page 1

Project Name: _____

4-A Water Application

Complete this section if water application will be used as a control method for limiting visible dust emissions and stabilizing surface areas. Check and answer everything that applies to this project.
(Rule 8021 Sec. 6.3.6.6)

Water Application Equipment:

☐ Sprinklers: Describe the activities that will utilize sprinklers:

_____

Minimum treated area: _____ ☐ Square Feet ☐ Acres

Maximum treated area: _____ ☐ Square Feet ☐ Acres

Minimum water flow rate: _____ Gallons/minute Duration: _____

☐ Water Truck, ☐ Water Trailer, ☐ Water Wagon, ☐ Other: _____

Describe the activities that will utilize this equipment:

_____

Number of application equipment available: _____

Application equipment capacity: _____

Application frequency (on a typical dry day): _____

Application rate: ☐ 650 gallons per acre ☐ _____ gallons per acre (Greater than 650)

Hours of operation: _____ to _____ ☐ Daily ☐ Mon-Fri ☐ Other: _____

Water application equipment is available to operate after normal working hours, on weekends, and holidays.

After-hours contact: _____ Phone No.: _____

After-hours contact: _____ Phone No.: _____

Water Supply: *Include the relative locations of these sources on the plot plan in Section 6.*

☐ Fire hydrants Number of hydrants available On-Site: _____ Off-Site: _____

☐ Storage tanks Number and capacity: _____

☐ Wells Number and flow rate: _____

☐ Canal, River, Pond, Lake, etc. Describe: _____

☐ Other: _____

Approval granted by the owner or public agency to use their water source for this project.

Owner or Agency: _____

Contact: _____ Phone No.: _____

Section 4 – Dust Control Methods – Page 2

Project Name: _____

4-B Dust Suppressant Products

Complete this section if a dust suppressant product will be used. These materials include, but are not limited to: hygroscopic suppressants (road salts), adhesives, petroleum emulsions, polymer emulsions, and bituminous materials (road oils). (Rule 8021 Sec. 6.3.6.6)

Copy this page if more than one dust suppressant product will be used.

☐ **Not Applicable.** No dust suppressant products will be used. **Skip to 4-C.**

Application Area: _____

Product Name: _____

Contractor's Name: _____ Phone No: _____

Application Rate: _____ Gallons of undiluted material per ☐ mile or ☐ acre treated.

Application Frequency: _____ Applications per ☐ week, ☐ month, ☐ year

Application Equipment: _____

Number of Application Equipment Available: _____

Application Equipment Capacity: _____

Attach each of the following information that fully describes this product. Use the checklist below to make sure all information is submitted with this plan.

- ☐ Product Specifications (MSDS, Product Safety Data Sheet, etc.)
- ☐ Manufacturer's Usage Instructions (method, frequency, and intensity of application)
- ☐ Environmental impacts and approvals or certifications related to the appropriate and safe use for ground application.

Section 4 – Dust Control Methods – Page 3

Project Name: _____

4-C Other Dust Control Methods

Check below the other types of dust control methods that will be employed at the construction site.
(Rule 8021 Sec. 5.2)

- ☐ Restricting unauthorized vehicle access:
  - ☐ Fences ☐ Gates ☐ Posts ☐ Berms ☐ Concrete Barriers ☐ Signs
  - ☐ Other: _____
- ☐ Wind barriers Describe: _____
- ☐ Posted speed limit signs that meet State and Federal Department of Transportation standards.
  (Rule 8021 Sec. 5.3)
  - ☐ Posted at 15 miles per hour ☐ Posted at _____ miles per hour (less than 15 MPH)
- ☐ Re-establish vegetation for temporarily stabilizing previously disturbed surfaces.
  - Explain: _____
- ☐ Apply and maintain gravel:
  - ☐ On haul roads ☐ On access roads ☐ At equipment storage yards
  - ☐ At vehicle traffic areas ☐ For temporarily stabilizing previously disturbed areas.
  - Explain: _____
- ☐ Apply pavement:
  - Explain: _____
- ☐ Other: _____

4-D Contingencies

Contingencies to be implemented should the listed control measures fail to meet the stability and visible emission requirements. Examples include, but are not limited to: replacement equipment, additional equipment, increased water application, additional water resources, adding chemical/organic dust suppressants, restricting access, and additional staffing. Attach any additional information if needed.
(Rule 4102 and Rule 8021 Sec. 5.2)

_____

4-E Record Keeping (Rule 8011 Sec. 6.2)

Records and any other supporting documents for demonstrating compliance must be maintained, but only for those days when a control measure is implemented. The District has developed record keeping forms that may be used for complying with this requirement. Check one or both below:

- ☐ Records will be maintained using the forms developed by the District.
- ☐ Records will be maintained using documents or forms developed by the owner or operator.

Explain and include copies: _____

Section 5 – Carryout and Trackout – Page 1

Project Name: _____

5-A Treatments for Preventing Trackout

Select the control devices that will be used for preventing trackout from occurring onto paved public roads. Trackout is any material that adheres to vehicle tires and is deposited onto a paved public road or the paved shoulder of a paved public road. Check one or a combination that will apply to this project.

☐ **Grizzly:** Rails, pipes, or grates used to dislodge debris off of vehicles before exiting the site. Extends from the intersection with the paved public road surface for the full width of the unpaved exit surface for a distance of at least 25 feet. (Rule 8041 Sec. 5.9.1)

Width: _____ Feet Length: _____ Feet

☐ **Gravel Pad:** A layer of washed gravel at least one (1) inch or larger in diameter, three (3) inches deep, and extends from the intersection with the public paved road surface for the full width of the unpaved exit surface for a distance of at least 50 feet. (Rule 8041 Sec. 5.9.2)

Width: _____ Feet Length: _____ Feet Depth: _____ Inches

Gravel Size: _____ Inches Clean-up Frequency: _____

☐ **Paved Surface:** Extends from the intersection with the paved public road surface for the full width of the unpaved access road for at least 100 feet to allow mud and dirt to drop off of vehicles before exiting the site. (Rule 8041 Sec. 5.9.3)

Width: _____ Feet Length: _____ Feet

Mud and dirt deposits accumulating on paved interior roads used for trackout control will be removed with sufficient frequency, but not less frequently than once per workday. Cleanup will commence within ½ hour of generating any carryout and trackout onto public roads. (Rule 8041 Sec. 5.8.2 and 5.9.3)

Clean-up Frequency: _____

☐ **Wheel Washer:** Uses water to dislodge debris from tires and vehicle undercarriage. (Rule 8011 Sec. 3.73)

Describe: _____

☐ **Other:** (Rule 8041 Sec. 5.8.1.2) _____

5-B Treatments for Preventing Carryout

Report the required treatments that will be used for preventing carryout from occurring on paved public roads. Carryout occurs when materials from emptied or loaded haul trucks, vehicles, or trailers falls onto a paved public road or paved shoulder of a paved public road. (Rule 8031 Sec 5.0)

☐ No haul trucks will be routinely entering or leaving the project site.

☐ Spillage or loss of bulk materials from holes or other openings in the cargo compartment's floor, sides, and tailgates will be prevented when material is transported onto any paved public access road.

Emptied Haul Trucks:

☐ Interior cargo compartments will be cleaned before leaving the project site.

☐ Cargo compartment will be covered with a tarp or suitable cover before leaving the project site.

Loaded Haul Trucks:

☐ Haul trucks will be loaded such that the freeboard is not less than six inches with water applied to the top of the load before leaving the project site.

☐ Cargo compartment and load will be covered with a tarp or suitable cover before leaving the project site.

☐ **Other:** _____

Section 5 – Carryout and Trackout – Page 2

Project Name: _____

5-C Cleaning up Carryout and Trackout

Check and report below the methods and frequency for cleaning up carryout and trackout from the surface and paved shoulders of paved public roads.

The use of blower devices, or dry rotary brushers or brooms, for removal of carryout and trackout from paved public roads is prohibited. (Rule 8041 Sec. 5.0)

Projects subject to a dust control plan are required to prevent and mitigate carryout and trackout beyond the minimum cleanup requirements. (Rule 8041 Sec. 5.3)

Cleanup Frequency:

☐ In the event the control device becomes insufficient to prevent carryout and trackout, removal of any carryout and trackout must be accomplished within one-half hour of the generation of such carryout and trackout. (Rule 8041 Sec. 5.8.2.)

Cleanup Method: Check the method below that will be used for cleaning carryout and trackout.

☐ Manually sweeping and picking up. (Rule 8041 Sec. 5.7.1)

☐ Mechanical sweeping with a rotary brush or broom accompanied or preceded by water. (Rule 8041 Sec. 5.7.2)

Describe the types of equipment that will used:

_____

☐ Operating a PM10-efficient street sweeper. (Rule 8041 Sec. 5.7.3)

Make and Model: _____

☐ Flushing with water: allowed if: (Rule 8041 Sec. 5.7.4)

- No curbs or gutters are present.
- Using water will not result as a source of trackout and carryout.
- Using water will not result in adverse impacts on storm water drainage systems.
- Using water will not violate any National Pollutant Discharge Elimination System permit program.

5-D Record keeping for Cleanup of Carryout and Trackout (Rule 8011 Sec. 6.2)

Records and any other supporting documents for demonstrating compliance must be maintained. The District has developed a record keeping form specific for cleaning carryout and trackout from paved public roads and may be used for complying with this requirement. Check one or both below:

☐ Records will be maintained using the form developed by the District.

☐ Records will be maintained using documents or forms developed by the owner or operator.

Explain and include copies: _____

Section 6 – Plot Plan

Project Name: _____

6-A Plot Plan

A plot plan identifies the type and location of each project. Attach appropriately sized maps with the project boundaries outlined or use the space in section 6-B to draw a plot plan. Attached maps may include tract maps, site maps, and topographic maps. Use the checklist below to make sure all areas have been identified on the plot plan. (Rule 8021 Sec. 6.3.6.2 & 6.3.6.5)

Identify the relative locations of actual and potential sources of fugitive dust emissions.

- ☐ Bulk material handling and storage areas.
- ☐ Paved and unpaved access roads, haul roads, traffic areas, and equipment storage yards.
- ☐ Exit points where carryout and trackout onto paved public roads may occur.
- ☐ Water supply locations if water application will be used for controlling visible dust emissions.

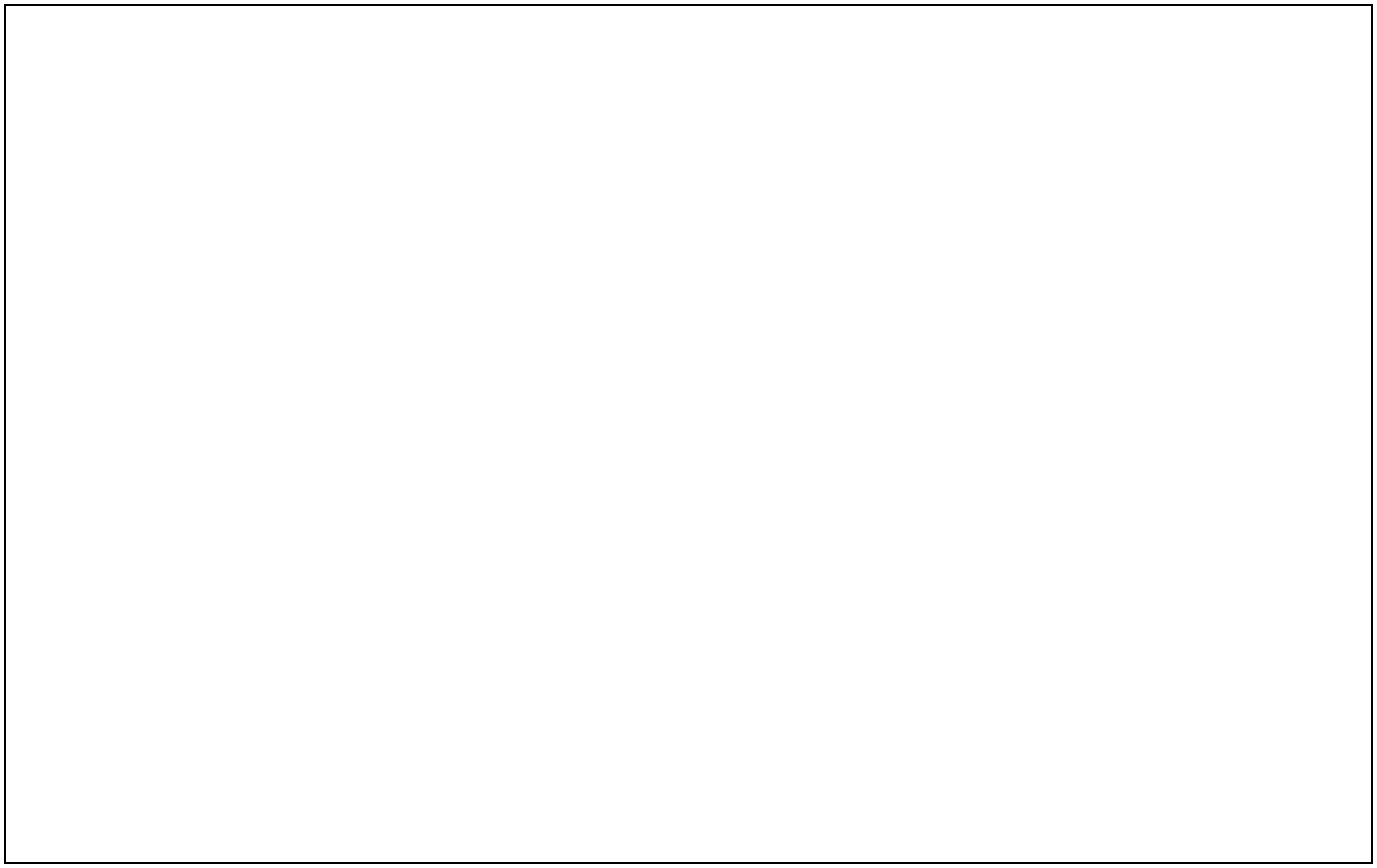
Identify the relative locations of sensitive receptors within ¼ mile of the project. (Rule 4102 Sec. 4.1)

- ☐ No sensitive receptors within ¼ mile of the project.
- ☐ Residential areas, schools, day care, churches, hospitals, nursing facilities, commercial, retail, etc.
- ☐ Freeways, roads, or traffic areas that may be affected by the dust generating activities.
- ☐ Other: _____

6-B Draw Plot Plan (if one is not attached)

May use the back of this form
Include a North Arrow

☐ Plot plan is attached (Skip to Section 7).



Section 7 – Certification

Project Name: _____

7-A Certification

The owner, principle operator, or the individual implementing must certify the plan. (Rule 8021 Sec 6.3). For Title V sources, the responsible official must provide the certification. (Rule 2520 Sec. 3.28 and 10.0).

I certify that all information contained herein and information submitted in the attachments to this documents are true and correct.

_____ _____
Print Name Title

_____ _____
Signature Date

_____ _____ _____
Phone Number Fax Number Cell Number

_____
E-Mail Address

SECTION 31 3115 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Provide soil poisoning to control subterranean termites as specified herein and needed for a complete and proper treatment.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 31 2000: Earthwork.

1.2 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures. **Provide additional copy of manufacturer's application recommendations and rates, to Architect and Inspector of Record, not less than 72 hours prior to application of termite treatment.**

1.3 QUALITY ASSURANCE

A. Qualifications of Applicator:
1. Properly licensed to provide such services by governmental agencies having jurisdiction.
2. Not less than five years' successful experience in soil treatment for subterranean termites.

1.4 SPECIAL WARRANTY

A. Upon completion of the Work, and as a condition of its acceptance, deliver to the Architect two copies of a special warranty and maintenance agreement signed by an authorized representative of the installing subcontractor, and co-signed by the Contractor, agreeing:
1. To make an inspection of the Work once each year for a total period of five years following Date of Substantial Completion for the purpose of detecting termite infestation;
2. If termite infestation is found during that five year period, to retreat in accordance with prevailing practices of the trade and within ten calendar days after such infestation is discovered;
3. To repair damage to the Work caused by termites during that five year period, to a maximum cost of $5,000;
4. To make such inspections, retreatment, and repairs at no additional cost to the Owner.
5. This Warranty and Maintenance Agreement shall be in addition to the warranty requirements of the Contract Documents, and the enforcement of its provisions, shall not deprive the Owner of any action, right, or remedy otherwise available to him.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions and requirements of State of California, and EPA.

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PART 2 - PRODUCTS

2.1 TERMITE CONTROL MATERIALS

A. Acceptable Products:
1. Wisdom TC Flowable by AMVAC.
2. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Product Characteristics:
1. Approved by governmental agencies having jurisdiction.
2. Active ingredients: Minimum of 7.9% Bifenthrin.

C. If combinations of toxicants are approved by governmental agencies having jurisdiction, provide toxicants having such approval and in the maximum strength so approved, at no additional cost to the Owner.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 APPLICATION

A. Apply toxicant at following locations:
1. Under slabs-on-grade.
2. At both sides of foundation surface.

B. Place all termite control materials in strict accordance with the manufacturer’s requirements and recommendations. Follow printed labels and instructions in a manner as to provide complete coverage without jeopardizing public safety.

END OF SECTION 31 3115

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SECTION 32 1210 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide asphalt paving, aggregate base, and wheel stops where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

1. The Work of this Section includes patching and repair of asphaltic concrete paving removed for installation of underground utilities.
2. The work of this Section includes patching and repair of asphaltic concrete paving removed for installation of new work.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 31 2000: Earthwork
3. Section 32 1720: Pavement Marking

1.2 COMPENSATION FOR ASPHALT OIL

A. The compensation payable for asphalt oil will be increased or decreased in conformance with the provisions of this section for fluctuations in crude oil prices exceeding 5 percent higher or lower than the price index at the time of bid.

B. The adjustment in compensation in each monthly billing will be determined in conformance with the formulae indicated in Exhibit A attached at the end of this section.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 3300.
1. Manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Certificates, signed by the asphaltic concrete paving materials producer and the asphaltic concrete paving subcontractor, stating that materials meet or exceed the specified requirements.

1.4 QUALITY ASSURANCE

A. All improvements within property owned by a City, County or State Entity, shall be in accordance with the Standard Specifications of the authority having jurisdiction.

1.5 SPECIAL WARRANTY

A. In addition to the warranty requirements of the Contract Documents, provide a material and workmanship warranty signed by an authorized representative of the installing subcontractor and cosigned by the Contractor with an extended warranty correction period of 2-years.

PART 2 - PRODUCTS

2.1 GENERAL

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A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 6200.

B. All materials and products shall be in conformance with the current construction standards and construction specifications of the governing jurisdiction.

2.2 ASPHALT CONCRETE

A. Asphalt Concrete: Type A; Standard Specifications Section 39, California Department of Transportation, 2010 edition.

B. Aggregate: 1/2" maximum (medium).

C. Asphalt Binder: Steam refined paving asphalt classified as PG 64-10; Section 92 of the State of California Standard Specifications, 2010 edition.

2.3 AGGREGATE BASES, SUBBASES, AND RECYCLED BASES

A. Aggregate Bases:
1. Class 2 conforming to Section 26 of the Caltrans Specifications, 2010 edition.
2. Gradation: As specified for 3/4" maximum aggregate.

B. Aggregate Subbase:
1. Conform to Section 25 of the Caltrans Specifications, 2010 edition.
2. Class as noted on the Drawings.

C. Recycled Base and Subbase Courses: Aggregate base or subbase may be composed of salvaged oiled earth and asphalt concrete from the existing roadway recycled and mixed with imported materials to meet the requirements of the base or subbase class noted on the Drawings.
1. Contractor shall be responsible for paying for “R” Value testing and other required testing of the salvaged materials.
2. Contractor must show that “R” Value and other properties of the salvaged material meets or exceeds the requirements of the base or subbase class noted on the Drawings.
3. The amount of recycled/reclaimed material in the mix may be up to 100 percent of the total volume of the aggregate used.

2.4 OTHER MATERIALS

A. Weed Killer: SFM 75 by Alligare.

B. Wheel Stops: 6"x6"x48" reinforced precast concrete with two 3/4"x24" steel anchor pins set in epoxy.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

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3.2 FINAL PREPARATION OF SUBGRADE

A. After preparation of subgrade as specified in another Section of these Specifications, thoroughly scarify and sprinkle the entire area to be paved, and then compact to a smooth, hard, even surface of 95% compaction to receive the aggregates.

B. Apply the specified weed killer to the entire area to be paved. Adhere to the manufacturer's application recommendations.

3.3 PLACEMENT OF BASE COURSES

A. Base:
1. Spread specified base material to a thickness providing the compacted thickness indicated.
2. Place in lifts not exceeding 8" in thickness.
3. Compact to 95%.

B. Moisture Content: Use only the amount of moisture needed to achieve the specified compaction.

3.4 PLACEMENT OF ASPHALTIC CONCRETE PAVING

A. Install the specified headers and stakes to achieve the arrangement of paving indicated.

B. Remove all loose materials from the compacted base.

C. Apply the specified prime coat, and tack coat where required, and allow to dry, in accordance with the manufacturer's recommendations.

D. Adjust frames and covers, if so required, to meet final grades.

E. Receipt of Asphaltic Concrete Materials:
1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 280 degrees F.
2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 50 degrees F, nor during fog, rain, or other unsuitable conditions. Begin placement only when temperature is above 51 degrees F **and rising**.

F. Spreading:
1. Spread material in a manner which requires the least handling.
2. Where thickness of finished paving will exceed 2.5", spread in two or more layers, with top layer no thinner than 1.5". No lift shall exceed 2.5".
3. Provide compacted thicknesses shown on the Drawings within a tolerance of minus 0.0" to plus 0.5".

G. Rolling:
1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the Drawings.
2. Roll in at least two directions until no roller marks are visible.
3. Finished paving smoothness tolerance:
   a. Free from birdbaths.
   b. No deviations greater than 1/8" in 6 feet.
   c. Compact to a maximum relative compaction of 97%, with no single test value being below a minimum relative compaction of 91% based on a 50 blow Marshall maximum density.
   d. **Percentage of voids shall not exceed 9%**

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3.5 INSTALLING WHEEL STOPS

A. Install the specified precast concrete wheel stops as shown on the Drawings, driving the approved 3/4" dia. anchor pins not less than 2'-0" through the paving into the earth.

3.6 FIELD QUALITY CONTROL

A. Secure the geotechnical engineer's inspection and approval of subgrades before subsequent construction is permitted thereon.

B. In-Place Density: Owner's testing laboratory will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
   1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
   2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D1188 or ASTM D2726.
      a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
      b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D2950 and correlated with ASTM D1188 or ASTM D2726.

C. In-place Compacted Thickness: Owner's testing laboratory will determine compacted thickness according to ASTM D3549.

D. Repair or remove and replace unacceptable paving as directed by the Architect.

E. Replace and compact asphalt where core tests were taken.

END OF SECTION 32 1210

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EXHIBIT "A"

COMPENSATION ADJUSTMENTS FOR CRUDE OIL PRICE INDEX FLUCTUATIONS

The compensation payable for asphalt oil will be increased or decreased in conformance with the provisions of this Exhibit "A" for crude oil fluctuations more than 5 percent higher or lower than the price index at the time of bid.

The adjustment in compensation will be determined In conformance with the following formula:

DETERMINE ASPHALT QUANTITIES:

Calculate the quantity of asphalt oil in hot mix asphalt using the following formula:

Qh = HMATT x [Xa / (100 + Xa)]

Qh = quantity in tons of asphalt oil used in hot mix asphalt

HMATT = hot mix asphalt total tons placed

Xa = theoretical asphalt oil content from job mix formula expressed as percentage of the weight of dry aggregate

DETERMINE PAYMENT ADJUSTMENTS:

If material containing asphalt oil is placed within multiple months, calculate separate adjustments for each month.

Each adjustment is calculated using the price index for the month in which the quantity of material containing asphalt oil subject to adjustment is placed in the work. The sum of all the adjustments is used for increasing or decreasing payment.

Calculate each payment adjustment as follows:

PA = Qh x A

PA = Payment adjustment in dollars for asphalt oil contained in materials placed in the work for a given month.

Qh = quantity in tons of asphalt oil used in hot mix asphalt.

A = Adjustment in dollars per ton of asphalt oil used to produce materials placed in the work rounded to the nearest $0.01.

A = [(Iu / Ib) - 1.05] x Ib x [1 + (T / 100)] for an **increase** in the crude oil price index exceeding 5%

A = [(Iu / Ib) - 0.95] x Ib x [1 + (T / 100)] for a **decrease** in the crude oil price index exceeding 5%

Iu = California Statewide Crude Oil Price Index for the month in which the quantity of asphalt oil subject to adjustment was placed in the work.

Ib = California Statewide Crude Oil Price Index for the month in which the bid opening for the project occurred

T = Sales and use tax rate, expressed as a percent, currently in effect in the tax jurisdiction where the material is placed. If the tax rate information is not submitted timely, the statewide sales and use tax rate is used in the payment adjustment calculations until the tax rate information is submitted.

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ADJUST THE CONTRACT SUM:

The Contract Sum will be increased or decreased based on the sum of the Payment Adjustments.

If the price index at the time of placement increases:

50% percent or more over the price index at bid opening, notify the Architect.

100% or more over the price index at bid opening, do not furnish material containing asphalt oil until the Architect authorizes the work to proceed. The Owner decrease or eliminate asphalt paving work.

The adjustment shall also be subject to the following:

The Contractor shall be liable to the Owner for decreased compensation adjustments and the Owner may deduct the amount thereof for moneys due or that may become due the Contractor.

In the event of an overrun of contract time, adjustment in compensation for asphalt oil during this overrun period will be determined using the California Statewide Crude Oil Price Index in effect on the first business day of the month within the month in which the overrun began.

CALIFORNIA STATEWIDE CRUDE OIL PRICE INDEX:

The California Statewide Crude Oil Price Index is determined each month on or about the 1st business day of the month by the California Department of Transportation using the average of the posted prices in effect for the previous month as posted by Chevron, ExxonMobil, and ConocoPhillips for the Buena Vista, Huntington Beach, and Midway Sunset fields.

If a company discontinues posting its prices for a field, the California Department of Transportation determines the index from the remaining posted prices. The Department may include additional fields to determine the index.

For the California Statewide Crude Oil Price Index, go to:

http://www.dot.ca.gov/hq/construc/crudeoilindex/

SUBMITTALS:

Before placing material containing asphalt oil, submit the current sales and use tax rate in effect in the tax jurisdiction where the material is to be placed.

Submit certified weight slips for hot mix asphalt, including those materials not paid for by weight.

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SECTION 32 1720 - PAVEMENT MARKING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide pavement marking in the types and arrangements shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
   1. Crosswalk, striping and graphics.
   2. Parking lot striping and graphics.
   3. Other lines and graphics as indicated.

B. Related Sections:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
   1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
   2. Installation Procedures: Submit manufacturer's recommended installation procedures.
   3. Shop Drawings: Photographs, scale drawings, or other data acceptable to the Architect, showing types of graphics proposed to be used.

PART 2 - PRODUCTS

2.1 MATERIALS GENERAL

A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.1 PAVEMENT MARKING PAINT

A. Provide paint specifically formulated for use as pavement marking in automobile traffic areas, and in the colors selected by the Architect from standard no lead colors of the approved manufacturer.
   1. Slip-resistant coefficient of friction ≥ 0.6; ADA Standard A4.5.1, for all paint.
   2. Blue at accessible parking to be color #15090; Federal Standard 595B or equal.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following
   1. Zoneline by PPG Architectural Coatings; 100% acrylic.
   2. SetFast Acrylic Waterborne Traffic Marking Paint by Sherwin-Williams.
   3. Vin-L-Stripe W801 Series by Dunn-Edwards.
   4. 506 Traffic Paint by Frazee; 100% acrylic.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected

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by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Allow a minimum of 24 hours before applying striping over asphalt paving fog seal.

3.2 APPLICATION

A. Secure the Architect's approval of graphics design and layout prior to start of application.

B. Using proper masking, stencils, and application equipment recommended for the purpose by the manufacturer of the approved paint, apply the approved paint in strict accordance with its manufacturer's recommendations.

C. **Provide 2 coats** of paint material at all markings.

3.3 PROTECTION

A. Provide traffic cones, barricades, and other devices needed to protect workmen and the paint until it is sufficiently dry to with-stand traffic.

3.4 CLEANUP

A. When paint is thoroughly dry, visually inspect the entire application, touchup as required to provide clean, straight lines and surfaces throughout.

B. Using a permanently opaque paint identical in color to the surface on which the paint was applied, block out and eliminate all traces of splashed, tracked, and/or spilled pavement marking paint from the background surfaces.

END OF SECTION32 1720

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SECTION 32 1725 - TACTILE WARNING SURFACES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide tactile warning surface mats and accessories in the types and arrangements shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Samples: Submit 3 samples of each kind or type of tile.

1.3 QUALITY ASSURANCE

A. Americans with Disabilities Act (ADA): Provide tactile warning surfaces which comply with the detectable warnings on walking surfaces section of the ADA (Title 49, CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 Detectable Warnings on Walking Surfaces.

B. Applicable provisions of California Building Code.

PART 2 - PRODUCTS

2.1 TACTILE WARNING TILE

A. Acceptable Manufacturers: "In-line" pattern, ADA/CBC compliant detectable warning mat and accessories from one manufacturer. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following;
1. Ada Solutions, Inc., (800) 372-0519.
2. Engineered Plastics Inc., (800) 682-2525.
3. Advantage Tactile Systems Inc., (800) 679-4022.
4. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

B. Color: Yellow conforming to Federal Color No. l 33538 of SAE AMS-STD-595A.

C. Accessories:
1. Adhesive: Manufacturer’s recommended adhesive.
2. Anchors: Color matched, corrosion-resistant, flat-head drive anchor; 1/4" diameter by 1-1/2" long provided by manufacturer.
3. Sealant: Manufacturer’s recommended sealant.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Install tactile warning surfaces, adhesive, anchors, and sealant in accordance with the manufacturer's written installation instructions.

B. Set tactile warning surfaces true and square to the curb ramp area.

END OF SECTION 32 1725

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SECTION 32 3115 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide chain link fence system where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 03 3000: Cast-In-Place Concrete
3. Section 08 7000: Accessible Gate Hardware

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Shop Drawings: Submit shop drawings of manufacturer's fence system.

PART 2 - PRODUCTS

2.1 GENERAL

A. Manufacturers: Shall be an active member of the Chain Link Fence Manufacturers Institute.

B. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.2 MATERIALS

A. Posts, Rails, and Frames: ASTM F1083 Schedule 40 hot-dipped galvanized steel pipe, welded construction, minimum yield strength of 30 ksi.

B. Wire Fabric: ASTM A 392 zinc coated steel chain link fabric.

C. Barbed Wire: Zinc-coated steel, complying with ASTM A121 Type Z Coating Class 1; 2 strands of 0.099 inch diameter wire, with 2-pointed barbs at 4 inches on center.

2.3 COATINGS

A. Hardware: Hot-dip galvanized to weight required by ASTM A153.

B. Accessories: Same finish as framing.

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2.4 FABRIC

A. Fabric: 2 inch diamond mesh interwoven wire, 9 gauge thick, top and bottom selvage knuckle end closed.

B. Provide fabric in one piece widths.

2.5 POSTS, RAILS, AND ASSOCIATED ITEMS

A. End, Corner, Slope, and Pull Posts: Provide at least the following minimum sizes and weights:
1. 6'-0" high and under: Pipe, 2.5" nominal, 2.875" outside diameter, 5.79 lbs. per lineal foot.
2. 8'-0" high and under: Pipe, 3" nominal, 3.500" outside diameter, 7.58 lbs. per lineal foot.
3. 12'-0" high and under: Pipe, 4" nominal, 4.500" outside diameter, 10.79 lbs. per lineal foot.

B. Line Posts: Provide minimum sizes and weights as follows:
1. 6'-0" high and under: Pipe, 2" nominal, 2.375" outside diameter, 3.65 lbs. per lineal foot.
2. 8'-0" high and under: Pipe, 3" nominal, 3.500" outside diameter, 7.58 lbs. per lineal foot.
2. 12'-0" high and under: Pipe, 4" nominal, 4.500" outside diameter, 10.79 lbs. per lineal foot.
4. For fencing taller than 12'-0" refer to the plans for post sizes.

C. Gate Posts: Provide gate posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
1. 13'-0" wide and under: Pipe, 4" nominal, 4.500" outside diameter, 10.79 lbs. per lineal foot.
2. Over 13 feet wide, and up to 18 feet wide: Pipe, 6" nominal, 6.625" outside diameter pipe, 18.97 lbs. per lineal foot.
3. Over 18 feet wide: Pipe, 8" nominal, 8.625" outside diameter pipe, 28.55 lbs per lineal foot.

D. Top Rails:
1. Pipe, 1.25" nominal, 1.660" outside diameter pipe weighing 2.27 lbs per lin ft; or
2. Provide in manufacturer's longest lengths, with expansion type couplings approximately 6" long for each joint.
3. Provide means for attaching top rail securely to each gate, corner, pull, slope, and end post.

E. Post Brace Assemblies:
1. Provide at end and gate posts, and at both sides of corner, slope, and pull posts, with the horizontal brace located at mid-height of the fabric.
2. Pipe, 1.25" nominal, 1.660" outside diameter pipe weighing 2.27 lbs per lin ft for horizontal brace.
3. 3/8" diameter rod with turnbuckle for diagonal truss.

F. Tension Wire: Provide number 7 gauge galvanized coiled spring wire at bottom of fabric.

G. Post Tops:
1. Provide steel, designed as weathertight closure cap.
2. Provide one cap for each post.
3. Provide caps with openings to permit through passage of top rail.

H. Stretcher Bars:
1. Provide one-piece lengths equal to full height of fabric, with a minimum cross-section of 3/16" x 3/4".
2. Provide one stretcher bar for each gate and end post, and two for each corner, slope, and pull post, except where fabric is woven integrally into the post.

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I. Stretcher Bar Bands:
   1. Provide steel, spaced not over 15" on centers, to secure stretcher bars to end, corner, pull, slope, and gate posts.
   2. Bands may be used also with special fittings for securing rails to end, corner, pull, slope, and gate posts

2.6 GATES

A. General:
   1. Fabricate gate perimeter frames of tubular members.
   2. Provide additional horizontal and vertical members to assure proper operation of the gate, and for attachment of fabric, hardware, and accessories.
   3. Space so frame members are not more than 8 feet apart.
   4. Materials and dimension: Pipe, 1.90 outside diameter.
   5. Weight: 2.72 lbs. per lineal foot.

B. Fabrication:
   1. Assemble gate frames by welding with special malleable or pressed steel fittings and rivets for rigid connections.
   2. Use same fabric as used in the fence.
   3. Install fabric with stretcher bars at vertical edges as a minimum.
   4. Attach stretchers to gate frame at not more than 15" on centers.
   5. Attach hardware with rivets or by other means which will provide security against removal and breakage.
   6. Provide diagonal cross-bracing consisting of 3/8" diameter adjustable length truss rods on gates where required to provide frame rigidity without sag or twist.

C. Gate Hardware: Provide following for each gate:
   1. Hinges:
      a. Pressed or forged steel, “bulldog” type hinge allowing 180 degree opening.
      b. Provide 1-1/2 pr. of hinges for each leaf over 6 feet in nominal height.
   2. Latches:
      a. Provide forked type or plunger-bar type to permit operation from either side of the gate.
      b. Provide padlock eye as integral part of latch.
      c. Delete any cane bolts or padlocks and provide panic hardware and other accessible hardware for all gates in exit discharge or accessible routes.
   3. Keeper: Provide keeper for vehicle gates, which automatically engages the gate leaf and holds it in the open position until manually released.
   4. Double gates:
      a. Provide gate stops for double gates consisting of mushroom or flush plate, with anchors.
      b. Set in concrete to engage the center drop rod or plunger bar.
      c. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.
   5. Rolling gates: Provide manufacturer's standard heavy-duty inverted channel track, ball-bearing hanger sheaves, dual rubber wheels, overhead framing and supports, guides, stays, bracing, hardware, and accessories as required.
   6. Accessible Gates: Comply with CBC 11B-404.2.10.
      a. Kick Plates: 10" high x full width kickplate, secure to chain link mesh on both sides of accessible gates.
      b. Hinges: Locinox Mammoth 180-Silver hydraulic gate closer and hinge or equivalent equal.

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c. Lever Hardware (lever both sides) Comply with CBC Section 11B-309.4. Provide keying to match the site keying scheme:

1	EA	STORE LOCK	L9466T 06A	626	Schlage
2	EA	CORE ONLY	23-030	626	Schlage
1	EA	LOCK BOX	K-BXMOR1-10G		Keedex
1	EA	STRIKE BOX	K-BXSTR		Keedex

2.7 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Wire Ties:
1. Fabric to Line Posts: 9 gauge wire ties spaced 12" on centers.
2. Fabric to Rails and Braces: 9 gauge wire ties spaced 24" on centers.
3. Fabric to Tension Wire: 11 gauge hog rings spaced 24" on centers.
4. Manufacturer's standard wire ties will be acceptable if of equal strength and durability.

B. Concrete: Comply with provisions of Section 03 3000 for 2500 psi concrete.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. General:
1. Install posts at a maximum spacing of 10 feet on centers.
2. Install corner or slope posts where changes in line or grade exceed a 30 degree deflection.
3. Provide and install fencing, posts, fabric and accessories in accordance with industry standards.
4. Do not, in any case, install fabric or accessories in less than 7 days after placement of concrete.
5. **Chain link fabric shall not exceed the top rail by more than ½".**
6. Adjust accessible gates to open with not more than 5.0 lbs. pressure, as allowed per California Building Code, Section 11B-404.2.9.

B. Excavation:
1. Drill holes for post footings in firm, undisturbed or compacted soil, strictly adhering to the dimensions and spacing shown.
2. Post hole dimensions:
   a. Provide as indicated in the plans. Provide 36" deep by 12" diameter foundations for all other posts.
3. Spread soil from excavations uniformly adjacent to the fence line, or on adjacent areas of the site if so directed.
4. When solid rock is encountered near the surface, drill into rock at least 12" for line posts and at least 18" for end, pull, gate, and corner posts. Drill hole at least 1" greater diameter than the largest dimension of the post to be placed.
5. If solid rock is below soil overburden, drill to full depth required, except penetration into rock need not exceed minimum depths specified above.

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C. Miscellaneous:
   1. Use U-shaped tie wires, conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least two full turns.
   2. Bend ends of wire to minimize hazards to persons and clothing.
   3. Fasteners:
      a. Install nuts for tension band and hardware bolts on side of fence opposite fabric side.
      b. Peen the ends of bolts to prevent removal of nuts.
   4. Repair coatings damaged in the shop or field erection, using a hot-applied repair compound applied in accordance with its manufacturer's recommendations as approved by the Architect.

END OF SECTION 32 3115

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SECTION 33 4000 - STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide storm sewage system where shown on the drawings, including pipe, manholes, cleanout and inlet structures, placing and compacting pipe bedding, final backfilling, compaction and grading. as specified herein, and as needed for a complete and proper installation.

B. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division l of these Specifications.
2. Section 01 5000: Temporary Facilities and Controls.
3. Section 01 5725: Storm Water Pollution Protection Plan.
4. Section 01 7330: Cutting and Patching.
5. Section 31 2000: Earthwork.
6. Section 32 1210: Asphaltic Concrete Paving.

1.2 SUBMITTALS

A. General: Submit in accordance with Section 01 3300.
1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements. Provide Certificates of compliance for material.
2. Installation Procedures: Submit manufacturer's recommended installation procedures.
3. Manufacturer's Installation Instructions: Indicate special procedures required to install products supplied.

1.3 QUALITY ASSURANCE

A. All improvements within property owned by a City, County or State Entity shall be in accordance with the Standard Specifications of the authority having jurisdiction.

1.4 COORDINATION

A. Verify that the location of existing utilities have been indicated at work site by utility authorities and the Owner.

1.5 EXISTING UTILITIES

A. The Engineer has made a diligent attempt to indicate on the plans the location of all main and trunkline utility facilities which may affect the Work. In most cases, however, the only available information relative to the existing location of said facilities was small scale undimensioned plats. The location of said facilities, therefore, shall be considered approximate only, until exposed by the Contractor.

B. Service laterals and appurtenances have also been shown where information was available as to their location. In most cases, however, the only available information relative to the existing location of said facilities was small scale undimensioned plats. The location of said facilities, therefore, shall be considered approximate only, until exposed by the Contractor.

C. At new work locations, expose by hand methods all existing utilities along the route of the new work prior to using any mechanical equipment. If mechanical equipment is allowed at a particular location, it may only be

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used after the completion by the Contractor of a successful exhaustive search by hand methods to locate all existing facilities as indicated on the plans, and as indicated at the work site by District personnel.

D. Maintain all existing utility mains and service lines in constant service during construction of the Work.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Storm drain piping shall be reinforced concrete pipe (RCP), polyvinyl chloride pipe (PVC), or high density polyethylene pipe (HDPE), unless a piping material is specifically designated on the Drawings.

2.2 REINFORCED CONCRETE PIPE MATERIALS

A. Reinforced Concrete Pipe (RCP): ASTM C76; bell-and-spigot ends and gasketed joints with ASTM C443 rubber gaskets; appropriate pipe class shall be determined by the depth of cover listed below unless noted otherwise on the Drawings.
   1. Class III, Wall B minimum for cover depths from 2 feet to 3 feet.
   2. Class II, Wall B minimum for cover depths greater than 3 feet up to 9 feet.
   3. Class III, Wall B minimum for cover depths of greater than 9 feet up to 14 feet.
   4. Class IV, Wall B minimum for cover depths of greater than 14 feet up to 20 feet.
   5. Class V, Wall B minimum for cover depths greater than 20 feet up to 30 feet.

B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.

C. Flexible Watertight Joints: Rubber compression gasket joints, ASTM C443.

2.3 POLYVINYL CHLORIDE PIPE MATERIALS

A. Polyvinyl Chloride Pipe: ASTM D3034, SDR 35, Type PSM; bell and spigot style joint end.

B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.

C. Flexible Watertight Joints: Provide rubber type gaskets for PVC pipe; ASTM 3212.

2.4 HIGH DENSITY POLYETHYLENE (HDPE) PIPE MATERIALS

A. High Density Polyethylene Pipe (HDPE): Corrugated exterior, smooth interior pipe; ASTM D1248, Type III, Category 4, Grade P33, Class C; or ASTM D3350 cell classification 324420C.
   1. 4” to 10” diameter pipe shall meet the requirements of AASHTO M252.
   2. 12” to 36” diameter pipe shall meet the requirements of AASHTO M294, Type S.
   3. 42” and 48” diameter pipe shall have a minimum pipe stiffness of 19 PSI and 17 PIS respectively, at 5% deflection in addition to the requirements of AASHTO M294.
   4. A rubber or neoprene gasket shall be installed at all joints.

B. Fittings:
   1. Shall not reduce or impair the overall integrity of the pipe.
   2. May be either molded or fabricated.

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3. Couplings shall have sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joint.
4. Only fittings supplied or recommended by the pipe manufacturer shall be used.
5. A rubber or neoprene gasket shall be installed at all joints.

2.5 DRAINAGE STRUCTURES

A. General: Construct manholes, inlets, and junction structures of reinforced concrete or precast reinforced concrete, complete with metal frames and covers or gratings, and with fixed ladder rungs, and mortared joints where indicated on the Drawings.

B. Concrete: 2500 psi reinforced concrete as specified in Section 03 3000, unless otherwise noted on the Drawings.

C. Mortar for pipe joints and connections to other drainage structures, and manhole construction:
1. ASTM C270, type M, except the maximum placement time shall be one hour.
2. Hydrated lime complying with ASTM C141, type B, may be added to the mixture of sand and cement in an amount equal to 25% of the volume of cement used.
3. Provide a quantity of water in the mixture sufficient to produce a stiff workable mortar, which shall be clean and free from harmful acids, alkalis, and organic impurities. Use the mortar within 30 minutes after water is added to the mix.

D. Frames, Covers, and Gratings: Cast iron; ASTM A48, Class 25.:
1. Provide all gratings or covers from the same manufacturer.
2. Provide ADA compliant grates where located in walking surfaces; with spaces no greater than 1/2" wide in one direction. Orient elongated openings perpendicular to dominant direction of travel.

E. Precast Reinforced Concrete Manhole Sections: ASTM C478; resilient connectors, ASTM C 923; elliptical single line reinforcement is not allowed unless shown on detail drawing.

Delete the following article if trench drains are not used on the project.

2.6 TRENCH BEDDING MATERIAL

A. Sand: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Identify location of proposed storm drainage facilities to be constructed. Expose connection points to existing system. Locate, identify, and protect existing above and below grade utilities from damage. Protect plant life, lawns, trees, shrubs, and other features not authorized for removal.

C. Employ equipment and methods appropriate to the work site. Protect excavated areas from drainage inflow, and provide drainage to all excavated areas. Dewater existing drainage basins and existing drainage pipeline

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systems as necessary to accomplish the work. Remove all interfering surface and subsurface improvements authorized for removal.

D. **PROVIDE WATER AND WATER TRUCK OR OTHER METHODS OF MITIGATING EXCESSIVE DUST ON THE SITE. KEEP SITE DAMP ENOUGH TO MINIMIZE POWDERING DIRT AND AIRBORNE DUST.**

E. Comply with Public Works Standards of the governing jurisdiction or these specifications, whichever is more stringent.

3.2 EXCAVATING, TRENCHING, AND BEDDING

A. Excavate, trench, and bed for site drains in accordance with pertinent provisions of Section 31 2000.

3.3 PIPE INSTALLATION

A. General:
1. Carefully examine each pipe prior to placing.
a. Promptly set aside defective pipe and damaged pipe.
b. Clearly identify defects.
c. Do not install defective pipe or damaged pipe.
d. Install the pipe and fittings to the lines and grades shown on the construction plans.
2. Place pipe to the grades and alignment indicated, with a tolerance of one in 1000 vertical and one in 500 horizontal, unless otherwise directed by the Architect.
3. Provide adequate facilities for lowering pipe safely into the trenches.

B. Install pipe and fittings in accordance with the manufacturer's recommendations, and these specifications.
1. Unless otherwise approved by the Engineer, lay all pipe upgrade from structure to structure, with bell or socket ends of pipe upgrade.
2. Excavate suitable bell (or socket) holes in the bedding material, so that the bells do not bear on the subgrade or bedding. Provide uniform bearing of pipe barrel on bedding material.
3. Ensure that all joints are properly "homed" and are watertight.
4. Bed concrete pipe in sand envelope, and compact. Place and compact the bedding material under, around and over the pipe, filling the trench cavity and extending from the bottom of the trench (6" below the outside bottom of the pipe barrel) to a level 12" above the outside top of the pipe barrel.
5. Do not place pipe in water, nor place pipe when trench or weather is unsuitable for such work.

C. High Density Polyethylene Pipe Installation: Installation shall be in accordance with ASTM 2321-89.

D. Utility Identification Tape:
1. Provide metallic plastic caution ribbon in trench approximately 12" above the top of the pipe indicating "CAUTION STORM SEWER".
2. Run ribbon continuous from inlet or manhole to each vertical structure.

3.4 DRAINAGE STRUCTURE INSTALLATION

A. Install drainage structures in accordance with the Drawings and with the manufacturer’s written installation instructions.

B. Form bottom of excavation clean and smooth to correct elevation.

C. Level top surface of base pad; sleeve concrete shaft sections to receive pipe sections.

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D. Establish elevations and pipe inverts for inlets and outlets as indicated.

E. Mount lid and frame level in grout, secured to top cone section to elevation indicated.

3.5 MANHOLE INSTALLATION

A. Place concrete base pad, trowel top surface level.

B. Place pre-fabricated manhole sections plumb and level, trim to correct elevations, anchor to base pad.

C. Form and place cast-in-place manhole cylinder plumb and level, to correct dimensions and elevations. As work progresses, build in fabricated metal items.

D. Cut and fit for pipe.

E. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.

F. Set cover frames and covers level without tipping, to correct elevations.

G. Coordinate with other sections of work to provide correct size, shape, and location.

3.6 BACKFILLING

A. Backfill and compact in accordance with pertinent provisions of Section 31 2000.

3.7 TESTING AND INSPECTING

A. Provide personnel and equipment necessary, and perform tests required to demonstrate that the work of this Section has been completed in accordance with the specified requirements.

B. Hydrostatic Test on Watertight Joints:
   1. Test joints within the building area and outside the building area but within ten feet of exterior walls or faces of the buildings.
   2. Make a hydrostatic test on each watertight joint. Test one sample of each type watertight joint used. If one sample fails because of faulty workmanship, test an additional joint.
   3. Demonstrate that joints in reinforced and unreinforced concrete pipe comply with ASTM C443-01.
   4. Comply with ASTM C425 for tests of joints in clay pipe.
   5. Make tests in concrete pipe at an internal hydrostatic pressure of 10 psi for 24 hours.
   6. Replace or repair joints found to be faulty. Repeat the test and repair cycle until joints are demonstrated to meet the specified requirements.

END OF SECTION 33 4000

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