PROJECT MANUAL
for;

Saddleback College
Powerhouse Drainage Project

South Orange County Community College District
28000 Marguerite Parkway
Mission Viejo, CA  92692

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CONTRACTING AND BIDDING MANUAL

SOUTH ORANGE COUNTY COMMUNITY COLLEGE
DISTRICT

SADDLEBACK COLLEGE
28000 Marguerite Parkway, Mission Viejo, CA. 92692-3635

MAIN ELECTRICAL ROOM SITE DRAINAGE PROJECT

BID NO. 2002
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SPECIAL CONDITIONS FOR SADDLEBACK COLLEGE: MAIN ELECTRICAL ROOM SITE DRAINAGE

*If the following items are not returned at the time of the bid opening, the bidder will be declared nonresponsive

+Items which successful bidder must submit after the award
NOTICE IS HEREBY GIVEN that the South Orange County Community College District, of Orange County, California, acting by and through its Governing Board, hereinafter referred to as "DISTRICT," will receive up to, but not later than, the above-stated time, sealed bids for the award of a contract for the above Project.

Project’s Preliminary Cost Estimate: MAIN ELECTRICAL ROOM SITE DRAINAGE PROJECT $200,000

Complete description, specifications and general conditions may be viewed at the Office of the Director of Facilities Planning and Purchasing Department at the above address, telephone (949) 582-4678 or previewed on-line at socccd.edu Interested bidders may purchase complete bid documents from Repro X-press, 18207 McDurmott St., Suite I, Irvine, CA 92614, Phone: (866) 364-8569, Fax: (949) 336-7757. Payment will not be refunded, and the Project Documents are not required to be returned.

There will be a mandatory job walk and conference at 9:00 am, July 13, 2011 starting in front of the Campus Police Building (HS) located on the Saddleback College campus, 28000 Marguerite Parkway, Mission Viejo, CA  92692.

Any bidder failing to attend the entire pre bid conference shall be deemed a non-responsive bidder and will have his bid returned unopened.

In accordance with the provisions of California Business and Professions Code Section 7028.15 and Public Contract Code Section 3300, the DISTRICT requires that the bidder possess the following classification of contractor’s license at the time the bid is submitted: Class B. Any bidder not so licensed at the time of the bid opening will be rejected as non-responsive.

Time is of the essence. Failure to complete the work within the time set forth in the bid documents will result in the imposition of liquidated damages for each calendar day of delay in the amount set forth in the Information for Bidders.

Each bid shall be accompanied by a bid security in the form of cash, a certified or cashier's check or bid bond in an amount not less than ten percent (10%) of the total bid price, payable to the DISTRICT. In the event the successful bidder fails to enter into the contract and execute the required documents, the bid security shall be forfeited. The successful bidder shall furnish a satisfactory Performance Bond and a Payment Bond in amounts not less than one hundred percent (100%) of the total bid price.

The DISTRICT reserves the right to reject any or all bids or to waive any irregularities or informalities in any bids or in the bidding process.
The California Department of Industrial Relations has determined the general prevailing rates of per diem wages for the locality in which the work is to be performed for the Project. Copies of these wage rate determinations, entitled Prevailing Wage Scale, are maintained at the DISTRICT office and are available at the following website: www.dir.ca.gov. It shall be mandatory upon the successful bidder to whom the contract is awarded, and upon any subcontractor listed, to pay not less than the said specified rates to all workers employed by them for the Project. These requirements will be enforced through our Labor Compliance consulting firm.

No bidder may withdraw any bid for a period of ninety (90) calendar days after the date set for the opening of bids.

The general prevailing rate of per diem wages is based upon a working day of eight (8) hours. The rate for holiday and overtime work shall be at least time and one-half.

Pursuant to Section 22300 of the Public Contract Code, the Agreement will contain provisions permitting the successful bidder to substitute securities for any monies withheld by the DISTRICT to ensure performance under the Agreement or permitting payment of retention earned directly into escrow.

Brandy K. D’Lena
Director,
Facilities Planning & Purchasing

PUBLISH: THE REGISTER

July 5, 2011

&

July 12, 2011

ATTENTION: LEGAL AD DEPARTMENT

In order for our Department to process payment, you MUST send Proof of Advertisement (Affidavit) on the date of publication to:

South Orange County Community College District
ATTN: Facilities Planning & Purchasing
28000 Marguerite Parkway
Mission Viejo, CA  92692

NOTE:

PLEASE CALL LINDA HALL AT (949) 348-6017 WHEN AD IS RECEIVED.
INFORMATION FOR BIDDERS

WARNING:
READ THIS DOCUMENT CAREFULLY. DO NOT ASSUME THAT IT IS THE SAME AS OTHER SIMILAR DOCUMENTS YOU MAY HAVE SEEN, EVEN IF FROM THE SAME DISTRICT.

1. Preparation of Bid Form. Bids shall be submitted on the prescribed Bid Form, completed in full. All bid items and statements shall be properly and legibly filled out. Numbers shall be stated both in words and in figures where so indicated, and where there is a conflict in the words and the figures, the words shall control over the numbers. The signatures of all persons shall be in longhand and in ink. Prices, wording and notations must be in ink or typewritten.

2. Form and Delivery of Bids. The bid must conform and be responsive to all Project Documents and shall be made on the Bid Form provided, and the complete bid, together with any and all additional materials as required, shall be enclosed in a sealed envelope, addressed and hand delivered or mailed to the DISTRICT at:

South Orange County Community College District
Health Science Building, 3rd Floor
28000 Marguerite Parkway
Mission Viejo, CA, 92692

and must be received on or before the bid deadline (Public Contract Code Section 20112) The envelope shall be plainly marked in the upper left hand corner with the bidder's name, the Project designation and the date and time for the opening of bids. **It is the bidder's sole responsibility to ensure that its bid is received prior to the bid deadline.** In accordance with Government Code Section 53068, any bid received after the scheduled closing time for receipt of bids shall be returned to the bidder unopened. At the time and place set forth for the opening of bids, the sealed bids will be opened and publicly read aloud. However, prequalification of bidders is required pursuant to Public Contract Code Section 20111.5 and only those sealed bids received from prequalified bidders shall be opened and publicly read aloud.

3. Bid Security. Each bid shall be accompanied by a bid security in the form of cash, a certified or cashier's check or bid bond in the amount of not less than ten percent (10%) of the total bid price payable to the DISTRICT and shall be given as a guarantee that the bidder, if awarded the contract, will execute the Agreement within ten (10) working days after notice of award of the contract, and will furnish, on the prescribed forms, a satisfactory Faithful Performance Bond in an amount not less than one hundred percent (100%) of the total bid price and separate Payment (labor and material) Bond in an amount not less than one hundred percent (100%) of the total bid price, furnish certificates and endorsements evidencing that the required insurance is in effect, the Workers’ Compensation Certificate, Drug-Free Work Place Certification, the Criminal Records Check Certification, Contractor’s Certificate Regarding Non-Asbestos Containing Materials, and the Disabled Veteran Business Enterprises Certification, if applicable, all within ten(10) working days of the notice of award of the contract or as otherwise requested in writing by the DISTRICT. It is understood and agreed that should bidder fail or refuse to return these documents as required by the DISTRICT, the bid security shall be forfeited to the DISTRICT. If the Bidder elects to furnish a bid bond as its Bid Security, the Bidder shall use the bid bond form included in the Project Documents.

4. Signature. Any signature required on Project Documents must be signed in the name of the bidder and must bear the signature of the person or persons duly authorized to sign these documents. Where indicated, if bidder is a corporation, the legal name of the corporation shall first be set forth, together with two signatures: one from among the chairman of the board, president or vice president and one from among the secretary, chief financial officer, or treasurer. Alternatively, the signature of other authorized officers or agents may be affixed, if duly authorized by the corporation. Such documents shall include the title of such signatories below.
the signature and shall bear the corporate seal. Where indicated, in the event that the bidder is a joint venture or partnership, there shall be submitted with the bid certifications signed by authorized officers of each of the parties to the joint venture or partnership, naming the individual who shall sign all necessary documents for the joint venture or partnership and, should the joint venture or partnership be the successful bidder, who shall act in all matters relative to the Project for the joint venture or partnership. If bidder is an individual, his/her signature shall be placed on such documents.

5. Modifications. Changes in or additions to any of the bid documents, summary of the work bid upon, alternative proposals, or any other modifications which are not specifically called for by the DISTRICT may result in the DISTRICT’S rejection of the bid as being nonresponsive. No oral, telephonic, facsimile or electronic modification of any of the bid documents will be considered.

6. Erasures, Inconsistent or Illegible Bids. The bid submitted must not contain any erasures, interlineations, or other corrections unless each such correction is authenticated by affixing the initials of the person(s) signing the bid in the margin immediately adjacent to the correction. In the event of inconsistency between words and numbers in the bid, words shall control numbers. In the event that DISTRICT determines that any bid is unintelligible, illegible or ambiguous, the DISTRICT may reject such bid as being nonresponsive.

7. Examination of Site and Project Documents. At its own expense and prior to submitting its bid, each bidder shall examine all documents relating to the Project; visit the site and determine the local conditions which may in any way affect the performance of the work, including the general prevailing rates of per diem wages and other relevant cost factors; familiarize itself with all Federal, State and Local laws, ordinances, rules, regulations and codes affecting the performance of the work, including the cost of permits and licenses required for the work; make such surveys and investigations, including investigation of subsurface or latent physical conditions at the site or where work is to be performed, as it may deem necessary for performance of the work at its bid price; determine the character, quality, and quantities of the work to be performed and the materials and equipment to be provided; and correlate its observations, investigations, and determinations with all requirements of the Project. The Project Documents show and describe the existing conditions as they are believed to have been used in the design of the work and are only provided as information for the bidder. The DISTRICT is not making any warranties regarding said information. The DISTRICT shall not be liable for any loss sustained by the successful bidder resulting from any variance between the conditions and design data given in the Project Documents and the actual conditions revealed during the bidder's pre-bid examination or during the progress of the work. **Bidder agrees that the submission of a bid shall be incontrovertible evidence that the bidder has complied with all the requirements of this provision of the Information for Bidders.**

8. Withdrawal of Bids. Any bid may be withdrawn, either personally or by written request signed by the bidder, at any time prior to the scheduled closing time for receipt of bids. The bid security for a bid withdrawn prior to the scheduled closing time for receipt of bids, in accordance with this paragraph, shall be returned. No bidder may withdraw any bid for a period of ninety (90) calendar days after the date set for the opening of bids.

9. Agreement and Bonds. The Agreement which the successful bidder will be required to execute and the payment bond required in accordance with Civil Code Section 3247, are included in the Project Documents. The payment bond shall be in the amount not less than one hundred percent (100%) of the amount of the contract in accordance with Civil Code Section 3248. The successful bidder will also be required to furnish a separate faithful performance bond in the amount of one hundred percent (100%) of the contract and in the form included in the Project Documents, which shall remain in full force and effect through the guarantee period as specified in the General Conditions. All bond premiums shall be at bidder’s cost.

10. Interpretation of Project Documents. If any bidder is in doubt as to the true meaning of any part of the Project Documents, or finds discrepancies in, or omissions from the Project Documents, a written request for an interpretation or correction thereof must be submitted to the DISTRICT no later than four (7) days before bid deadline. No requests shall be considered after this time. The bidder submitting the written request shall be
responsible for its prompt delivery. Any interpretation or correction of the Project Documents will be made solely at DISTRICT’s discretion and only by written addendum duly issued by the DISTRICT, and a copy of such addendum will be hand delivered or mailed or faxed to each bidder known to have received a set of the Project Documents. No person is authorized to make any oral interpretation of any provision in the Project Documents, nor shall any oral interpretation of Project Documents be binding on the DISTRICT. If there are discrepancies of any kind in the Project Documents, the interpretation of the DISTRICT shall prevail. Submittal of a bid without a request for clarifications shall be incontrovertible evidence that the bidder has determined that the Project Documents are acceptable and sufficient for bidding and completing the work; that bidder is capable of reading, following and completing the work in accordance with the Project Documents; and that bidder agrees that the project can and will be completed according to the DISTRICT’S timelines and according to the progress schedule to be submitted by the successful bidder incorporating the DISTRICT’S timelines for completion of the project.

11. Bidders Interested in More Than One Bid. No person, firm or corporation shall be allowed to make, or file, or be interested in more than one bid for the same work unless alternate bids are specifically called for by the DISTRICT. A person, firm, or corporation that has submitted a sub-proposal to a bidder, or that has quoted prices of materials to a bidder, is not thereby disqualified from submitting a proposal or quoting prices to other bidders or submitting a bid on the Project.

12. Award of Contract. The DISTRICT reserves the right to reject any or all bids, or to waive any irregularities or informalities in any bids or in the bidding process. The award of the contract, if made by the DISTRICT, will be by action of the Governing Board and to the lowest responsive and responsible bidder. If two identical low bids are received from responsive and responsible bidders, the DISTRICT will determine which bid will be accepted pursuant to Public Contract Code Section 20117. In the event an award of the contract is made to a bidder, and such bidder fails or refuses to execute the Agreement and provide the required documents within fifteen (15) working days after the notice of award of the contract to bidder, the DISTRICT may award the contract to the next lowest responsive and responsible bidder or reject all bidders.

13. Alternate Bids. (Not Used) If alternate bids are called for, the DISTRICT will award the contract to the lowest responsive and responsible bidder in a manner that prevents any information that would identify any of the bidders from being revealed to the DISTRICT before the ranking of all bidders from lowest to highest has been determined. If alternate bids are called for, in addition to submitting all bid documents in a sealed envelope as indicated, bidders must submit, in a separate, plain unmarked, sealed envelope, the BID SUMMARY completed with all the prices and the BIDDER NUMBER. Bidders must obtain their bidders numbers at the office of the Construction Manager:

IF APPLICABLE INSERT INFORMATION

Aside from the bidder number, there should be no return address, logo, signature, or other means of identifying the bidder on either the bid summary or the envelope. The bid summaries will be opened and read in public at the time and place specified. The District will use these bid summaries to determine which alternates to accept, if any, and rank all bidders from lowest to highest.

14. Competency of Bidders. In selecting the lowest responsive and responsible bidder, consideration will be given not only to the financial standing but also to the general competency of the bidder for the performance of the Project. By submitting a bid, each bidder agrees that the DISTRICT, in determining the successful bidder and its eligibility for the award, may consider the bidder’s experience and facilities, conduct and performance under other contracts, financial condition, reputation in the industry, and other factors which could affect the bidder’s performance of the Project. To this end, each bid shall be supported by a statement of the bidder’s experience on the form entitled “INFORMATION REQUIRED OF BIDDER.”

The DISTRICT may also consider the qualifications and experience of subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for
those portions of the work. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by the DISTRICT. In this regard, the DISTRICT may conduct such investigations as the DISTRICT deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of the bidder, proposed subcontractors, and other persons and organizations to do the work to the DISTRICT’s satisfaction within the prescribed time. The DISTRICT reserves the right to reject the bid of any bidder who does not pass any such evaluation to the satisfaction of the DISTRICT.

15. **Bidder's Prequalification. (Not Used)** Only Bid Proposals submitted by Prequalified Bidders will be considered. A Bid Proposal submitted by a Bidder who is not prequalified will be deemed a non-responsive Bid Proposal and will be rejected by the District. A Bidder who has not completed the Prequalification Application and has not been deemed a "Qualified Bidder" must complete the Prequalification Application and submit the Prequalification Application to the District by the date and in the manner set forth in the Prequalification Application. The failure to submit a completed Prequalification Application on or prior to such date will render the Bid Proposal of the Bidder untimely submitting a completed Prequalification Application to be non-responsive and rejected. If the District determines that any information provided by a Bidder in the Prequalification Application is false or misleading, or is incomplete so as to be false or misleading, the District may reject the Bid Proposal submitted by such Bidder as being non-responsive.

16. **Listing Subcontractors.** Each bidder shall submit, on the form furnished with the Project Documents, a list of the proposed subcontractors on this Project as required by the Subletting and Subcontracting Fair Practices Act (Public Contract Code Section 4100, et seq.). If alternate bids are called for and the bidder intends to use different or additional subcontractors, a separate list of subcontractors must be submitted for each such alternate bid. If the bidder fails to specify a subcontractor for any portion of the work in excess of one half (1/2) of one percent (1%) of the bidder’s total bid, the bidder agrees that he/she is fully qualified to perform that portion of the work. Violation of this requirement (including the procurement of a subcontractor for the Project if no subcontractor is specified) can result in the DISTRICT invoking the remedies of Public Contract Code Sections 4110 and 4111.

17. **Insurance and Workers' Compensation.** The successful bidder shall be required to furnish certificates and endorsements evidencing that the required insurance is in effect. DISTRICT may request that such certificates and endorsements are completed on DISTRICT provided forms. In accordance with the provisions of Section 3700 of the Labor Code, the successful bidder shall secure the payment of compensation to all employees. The successful bidder who has been awarded the contract shall sign and file with DISTRICT prior to performing the work, the Workers’ Compensation Certificate included as a part of the Project Documents. Labor Code Section 1861.

18. **Contractor's License.** If, at the time and date of the contract execution, bidder is not properly licensed to perform the Project in accordance with Division 3, Chapter 9, of the Business and Professions Code and the Project Documents, such bid will be rejected as nonresponsive. (Public Contract Code Section 3300) Pursuant to Business and Professions Code Section 7028.15, no payment shall be made for work or materials under the contract unless and until the Registrar of Contractors verifies to the DISTRICT that the bidder was properly licensed at the time the bid was submitted. Any bidder not so licensed is subject to penalties under the law and the contract will be considered void and DISTRICT shall have the right to bring an action against the unlicensed bidder awarded the contract for recovery of all compensation paid under the contract. (Business and Professions Code Section 7031(b)) If the license classification specified hereinafter is that of a "specialty contractor" as defined in Section 7058 of the Business and Professions Code, the specialty contractor awarded the contract for this work shall construct a majority of the work, in accordance with the provisions of Business and Professions Code Section 7059. The bidder may not use the contractor license of a third party for this bid.

19. **Anti-Discrimination.** In connection with all work performed under this Project, there shall be no unlawful discrimination against any prospective or active employee engaged in the work because of race, color, ancestry, national origin, religious creed, sex, age, marital status, physical disability, mental disability, or medical
condition. The successful bidder agrees to comply with applicable Federal and State laws including, but not limited to, the California Fair Employment and Housing Act, beginning with Government Code Section 12900 and Labor Code Section 1735. In addition, the successful bidder agrees to require like compliance by any subcontractors employed on the Project by such bidder.

20. **Hold Harmless and Indemnification.** The successful bidder awarded the contract will be required to indemnify and hold harmless the DISTRICT, its Governing Board, officers, agents, and employees as set forth in the Agreement.

21. **Substitutions.** Should the bidder wish to request any substitution for the materials, process, service, or equipment specified, the bidder shall be required to comply with Article 30 of the General Conditions.

22. **Surety Qualifications for Bonds.** Bidders shall ensure all surety companies have 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. Only California admitted surety insurers will be acceptable for the issuance of bonds. (Code of Civil Procedure Section 995.311) DISTRICT shall verify the status of the surety by one of the following ways: (1) printing out information from the website of the California Department of Insurance confirming the surety is an admitted surety insurer and attaching it to the bond, or (2) obtaining a certificate from the county clerk for the county in which the DISTRICT is located that confirms the surety is an admitted surety insurer and attaching it to the bond. Any admitted surety insurer who cannot satisfy the minimum rating specified above, but who satisfies the following requirements set forth in Code of Civil Procedure Section 995.660 shall be accepted and approved for the issuance of bonds:

   (a) There must be on file in the office of the county clerk, for the county in which the DISTRICT is located, an unrevoked appointment, power of attorney, bylaws, or other instrument, duly certified by the proper authority and attested by the seal of the insurer authorizing the person who executed the bond to do so for and on behalf of the insurer within ten (10) calendar days of the insurer’s receipt of a request to submit such document from the DISTRICT, and an original or certified copy of the document must be submitted to the DISTRICT.

   (b) A certified copy of the certificate of authority of the insurer issued by the Insurance Commissioner must be submitted to the DISTRICT within ten (10) calendar days of the insurer’s receipt of a request to submit such document from the DISTRICT.

   (c) A certificate from the clerk of the county that the certificate of authority of the insurer has not been surrendered, revoked, cancelled, annulled, or suspended, and in the event it has, whether renewed authority has been granted must be submitted to DISTRICT within ten (10) calendar days of the insurer’s receipt of a request to submit such document from the DISTRICT.

   (d) Copies of the insurer’s most recent annual statement and quarterly statement filed with the California Department of Insurance must be submitted to the DISTRICT within ten (10) calendar days of the insurer’s receipt of a request to submit the statements.

23. **Liquidated Damages.** All work must be completed within the time limits set forth in the Project Documents. It is agreed that damages for the failure to complete the Project described herein within the time limits required are impossible to ascertain. Should the work not be completed within the specified time for completion, the successful bidder awarded the contract shall be liable for liquidated damages, payable to the DISTRICT, in an amount of One Thousand Dollars ($1,000.00) for each consecutive calendar day of delay in completion. Such damages shall be deducted from any payments due or to become due to the successful bidder. Government Code Section 53069.85, Civil Code Section 1671.

24. **Drug-Free Workplace Certification.** Pursuant to Government Code Sections 8350, et seq., the successful bidder will be required to execute a Drug-Free Workplace Certification upon execution of the Agreement. The bidder will be required to take positive measures outlined in the certification in order to ensure the presence of a
drug-free workplace. Failure to abide with the conditions set forth in the Drug-Free Workplace Act could result in penalties including termination of the Agreement or suspension of payment thereunder.

25. **Noncollusion Affidavit.** In accordance with the provisions of Section 7106 of the Public Contract Code, each bid must be accompanied by a noncollusion affidavit properly notarized.

26. **Escrow Agreement.** 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 the successful bidder awarded the contract, securities equivalent to the amount withheld as retention shall be deposited with the DISTRICT, or with a state or federally chartered bank in California as the escrow agent, who shall then pay such monies to the successful bidder. The DISTRICT retains the sole discretion to approve the bank selected by the successful bidder to serve as escrow agent. Upon satisfactory completion of the contract, the securities shall be returned to the successful bidder. Securities eligible for investment shall include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit. The successful bidder shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.

In the alternative, under Section 22300, the successful bidder may request DISTRICT to make payment of earned retentions directly to the escrow agent at the expense of the successful bidder. Also at the successful bidder's expense, the successful bidder may direct investment of the payments into securities, and the successful bidder shall receive interest earned on such investment upon the same conditions as provided for securities deposited by successful bidder. Upon satisfactory completion of the contract, successful bidder shall receive from the escrow agent all securities, interest and payments received by escrow agent from DISTRICT pursuant to the terms of Section 22300.

The successful bidder who elects to receive interest on monies withheld in retention by the DISTRICT shall, at the request of any subcontractor performing more than five percent (5%) of the successful bidder’s total bid, make that option available to the subcontractor regarding any monies withheld by the successful bidder from the subcontractor. If the successful bidder elects to receive interest on any monies withheld in retention by the DISTRICT, then the subcontractor shall receive the identical rate of interest received by the successful bidder on any retention monies withheld from the subcontractor by the successful bidder, less any actual pro rata costs associated with administering and calculating that interest. In the event that the interest rate is a fluctuating rate, the rate for the subcontractor shall be determined by calculating the interest rate paid during the time that retentions were withheld from the subcontractor. If the successful bidder elects to substitute securities in lieu of retention, then, by mutual consent of the successful bidder and subcontractor, the subcontractor may substitute securities in exchange for the release of monies held in retention by the successful bidder. Public Contract Code Section 22300(d)(1).

The successful bidder wishing to utilize Public Contract Code Section 22300 and enter into an Escrow Agreement shall complete and execute the form Escrow Agreement included in the Project Documents and submit it to the DISTRICT.

27. **Change Orders.** All change order requests must be submitted in the form set forth in the Project Documents and pursuant to Article 60 of the General Conditions. The amount of allowable charges submitted pursuant to a change order shall be limited to the charges allowed under Article 60 of the General Conditions. Indirect, consequential and incidental costs, project management costs, extended home office and field office overhead, administrative costs and profit and other charges not specifically authorized under Article 60 of the General Conditions will not be allowed.

28. **Tobacco-Free Policy.** The successful bidder shall agree to enforce a tobacco-free work site.

29. **Lead.** Pursuant to the Lead-Safe Schools Protection Act (Education Code Sections 32240, et seq.) and other applicable law, the successful bidder shall not use lead-based paint, lead plumbing and solders, or other...
potential sources of lead contamination in the construction of any new school facility or the modernization or renovation of any existing school facility.

30. The number of executed copies of the Agreement, the Faithful Performance Bond, and the Payment Bond required is THREE (3).
Name of Bidder: ____________________________________________________________

To: South Orange County Community College District, acting by and through its Governing Board, herein called the "DISTRICT."

1. The undersigned Bidder, having become familiarized with all the following documents including but not limited to the Notice Calling for Bids, Information for Bidders, Bid Form, Bid Security, Designation of Subcontractors Form, Information Required of Bidder, all prequalification forms pursuant to Public Contract Code Section 20111.5, if any, Noncollusion Affidavit, Workers’ Compensation Certificate, Faithful Performance Bond, Payment Bond, Agreement, Escrow Agreement, Drug-Free Workplace Certification, Criminal Records Check Certification, Change Order Forms, Shop Drawing Transmittal Form, all insurance requirements, Guarantee forms, Contractor’s Certificate Regarding Non-Asbestos Containing Materials, Disabled Veteran Business Enterprises Certification, if applicable, General Conditions and Supplemental Conditions, if any, Special Conditions, if any, drawings, specifications, and all modifications, addenda and amendments, if any (hereinafter Project Documents), the local conditions affecting the performance of the work and the cost of the work at the place where the work is to be done, hereby proposes and agrees to be bound by all the terms and conditions of the Project Documents and agrees to perform, within the time stipulated, the work, including all of its component parts, and everything required to be performed, and to provide and furnish and pay for any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, utility and transportation services necessary to perform the work and complete in a good workmanlike manner all of the work required in accordance with laws, codes, regulations, ordinances and any other legal requirements governing the work, in connection with the following:

Project: SOCCCD - Saddleback College

MAIN ELECTRICAL ROOM SITE DRAINAGE PROJECT

District Bid #: 2002

all in strict conformity with the Project Documents, including Addenda Nos. ____ , ____ , ____ and ____ , on file at the office of the Director of Facilities Planning and Purchasing of said DISTRICT for the following sums:

<table>
<thead>
<tr>
<th>Handwritten</th>
<th>Numeric</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE BID FOR MAIN ELECTRICAL ROOM SITE DRAINAGE PROJECT @ Saddleback College</td>
<td>$_______________________ /100</td>
</tr>
<tr>
<td>ALLOWANCE: Refer to Supplemental Conditions</td>
<td>$ 50,000.00</td>
</tr>
<tr>
<td>$ Fifty Thousand and no/100</td>
<td>$</td>
</tr>
<tr>
<td>BID TOTAL (INCLUDING ALLOWANCE)</td>
<td>$_______________________</td>
</tr>
</tbody>
</table>
Each individual bid term shall be determined from visiting the work site, reviewing the drawings and specifications and all portions of the Project Documents, and shall include all items necessary to complete the work, including the assumption of all obligations, duties, and responsibilities necessary to the successful completion of the Project, and the furnishing of all materials and equipment required to be incorporated in and form a permanent part of the work, and the furnishing of tools, equipment, supplies, transportation, facilities, labor, supervision, and services required to perform and complete the work, all as per the requirements of the Project Documents, whether or not expressly listed or designated.

2. It is understood that the DISTRICT reserves the right to reject any or all bids or to waive any irregularities or informalities in any bids or in the bidding process. Bidder agrees that this bid shall remain open and not be withdrawn for the period specified in the Information for Bidders.

3. The required bid security is attached.

4. The required list(s) of proposed subcontractors is attached hereto, and the undersigned represents and warrants that such list(s) is complete and in compliance with the Subletting and Subcontracting Fair Practices Act. Public Contract Code Sections 4100, et seq.

5. It is understood and agreed that if written notice of the award of a contract is mailed, faxed, or delivered to the bidder, the bidder will execute and deliver to the DISTRICT the Agreement and will also furnish and deliver to the DISTRICT the Faithful Performance Bond and a separate Payment Bond as specified, and certificates and endorsements of insurance, the Workers’ Compensation Certificate, Drug-Free Work Place Certification, the Criminal Records Check Certification, Contractor’s Certificate Regarding Non-Asbestos Containing Materials, and the Disabled Veteran Business Enterprises Certification, if applicable, within 10 working days of the notice of award of the contract, or as otherwise requested in writing by the DISTRICT. It is understood that should bidder fail or refuse to return these documents as required by the DISTRICT, the bid security shall be forfeited to the DISTRICT. The bidder further agrees that the work shall be commenced by the bidder, if awarded the contract, on or before the fifth day after receiving the DISTRICT’s Notice to Proceed, and shall be completed by the bidder in the time specified by the DISTRICT.

6. Communications conveying notice of award of the contract, requests for additional information or other correspondence should be addressed to the bidder at the address stated below.

7. The name(s) of all persons interested in the bid as principals are as follows:

8. In submitting this bid, the bidder offers and agrees that if the bid is accepted, it will assign to DISTRICT 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. Section 15) or under the Cartwright Act (Business & Professions Code Section 16700, et seq.) arising from purchases of goods, materials, or services by the bidder for sale to the DISTRICT pursuant to the bid. Such assignment shall be made and become effective at the time the DISTRICT tenders final payment under the contract. (Public Contract Code Section 7103.5; Government Code Section 4450, 4451 and 4552).

9. The undersigned hereby warrants that the bidder has an appropriate license, License No. __________________, Class B, at the time of the bid opening, that such license entitles bidder to provide the work, that such license will be in full force and effect throughout the duration of performance of this Project. Bidder shall
be nonresponsive if the Bidder is not licensed as required by the DISTRICT at the time of the bid opening. Any and all subcontractors to be employed by the undersigned shall have appropriate licenses at the time of the bid opening.

10. The bidder hereby certifies that it is, and at all times during the performance of work hereunder shall be, in full compliance with the provisions of the Immigration Reform and Control Act of 1986 ("IRCA") in the hiring of its employees, and the bidder shall indemnify, hold harmless and defend the DISTRICT against any and all actions, proceedings, penalties or claims arising out of the bidder's failure to comply strictly with the IRCA.

11. It is understood and agreed that if requested by the DISTRICT, the bidder shall furnish a notarized financial statement, references, and other information required by the DISTRICT sufficiently comprehensive to permit an appraisal of bidder's ability to perform the Project.

12. The undersigned hereby warrants that all work, except work of a maintenance period, shall be completed within (75) consecutive calendar days for the entire project scope of work. Time is of the essence. The undersigned agrees that failure to complete the work within the time set forth herein will result in the imposition of liquidated damages for each consecutive calendar day of delay in the amount of One Thousand Dollars ($1,000.00). (Government Code Section 53069.85)

13. The required non-collusion affidavit properly notarized is attached as required by Public Contract Code Section 7106. Bidder understands and agrees that failure to submit a completed and signed affidavit will render the bidder automatically nonresponsive.

14. It is understood and agreed that all change order requests must be submitted in the form set forth in the Project Documents and pursuant to Article 60 of the General Conditions. The amount of allowable charges submitted pursuant to a change order shall be limited to the charges allowed under Article 60 of the General Conditions. Indirect, consequential and incidental costs, project management costs, extended home office and field office overhead, administrative costs and profit and other charges not specifically authorized under Article 60 of the General Conditions will not be allowed.

15. The Information Required of Bidder form has been fully completed and is attached hereto.
The undersigned hereby declares that all of the representations of this bid are made under penalty of perjury under the laws of the State of California.

**Individual**

Name: ________________________________

Signed by: ________________________________

Print Name: ________________________________

Date: ________________________________

Business Address: ________________________________

Telephone: ________________________________

**Partnership**

Name: ________________________________

Signed by: ________________________________

Print Name: ________________________________

Date: ________________________________

Business Address: ________________________________

Telephone: ________________________________

**Corporation**

Name: ________________________________

(a ______ Corporation⁠¹)

________________________________________________________________

---

¹ A corporation awarded the contract shall furnish evidence of its corporate existence and evidence that the officer signing the Agreement and bonds is duly authorized to do so.
Business Address: ____________________________________________

_________________________________________________________

Telephone: _________________________________________________

Signed by: _______________________, President, Date: ____________

Print Name: ______________________ President

Signed by: _______________________, Secretary, Date: ____________

Print Name: ______________________, Secretary

[Seal]
Joint Venturer

Name: 

Signed by: , Joint Venturer

Print Name: 

Date: 

Business Address: 

Telephone: 

Other Parties to

If an individual: 

Joint Venture: (Name)

Signed by: 

Print Name: 

Date: 

Doing Business as: 

Business Address: 

Telephone: 

Telephone: 


If a Partnership: __________________________________________

(Name)

Signed by: __________________________________________, Partner

Print Name: __________________________________________

Date: __________________________________________

Business Address____________________________________

________________________________________________________________

Telephone: __________________________________________

If a Corporation: __________________________________________

(a________________ Corporation)

Signed By: __________________________________________ Date: __________

Print Name: __________________________________________

Title: __________________________________________

Date: __________________________________________

Business Address____________________________________

________________________________________________________________

Telephone: __________________________________________
Bid Bond No.: _____

BID BOND

KNOW ALL PERSONS BY THESE PRESENT, that we________________________

as Principal, and________________________ as Surety, a California admitted surety insurer, are
held and firmly bound unto the __ South Orange County Community College District, hereinafter called the
DISTRICT, in the sum of Ten____ PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal
submitted to the said DISTRICT for the work described below for the payment of which sum in lawful money of the
United States, well and truly to be made, we jointly and severally bind ourselves, our heirs, executors,
administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted the accompanying bid
dated ______, 20___, for SOCCCD - Saddleback College

MAIN ELECTRICAL SITE DRAINAGE PROJECT

District Bid # 2002

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified therein after
the opening of the same, or, if no period be specified, within sixty (60) days after said opening; and if the Principal
is awarded the contract, and shall within the period specified therefore, or, if no period be specified, within 10
working days after the notice of award of the contract, or as otherwise requested in writing by the DISTRICT, enter
into a written contract with the DISTRICT, in accordance with the bid as accepted and give bonds with good and
sufficient surety or sureties, as may be required for the faithful performance and proper fulfillment of such contract
and for the payment for labor and materials used for the performance of the contract, furnish certificates and
endorsements evidencing the required insurance is in effect and furnish and deliver to the DISTRICT the Workers’
Compensation Certificate, Drug-Free Work Place Certification, the Criminal Records Check Certification,
Contractor’s Certificate Regarding Non-Asbestos Containing Materials, and the Disabled Veteran Business
Enterprises Certification, if applicable, then the above obligation shall be void and of no effect, otherwise the bond
amount shall be forfeited to the DISTRICT.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or
addition to the terms of the contract or the call for bids, or to the work to be performed thereunder, or the
specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby
waive notice of any such change, extension of time, alteration or addition to the terms of said contract or the call for
bids, or to the work, or to the specifications.

In the event suit is brought upon this bond by the DISTRICT and judgment is recovered, the Surety shall
pay all costs incurred by the DISTRICT in such suit, including reasonable attorney's fees to be fixed by the court.

IN WITNESS HEREOF, the parties have executed this bond under their several seals this ___ day of ___,
20___, the name and corporate seal of each corporate party being hereto affixed and duly signed by its undersigned
authorized representative.
(Corporate Seal of Principal, if Corporation)

Principal (Proper Name of Bidder)

By: ________________________________

Signature

_______________________________

Print Name

_______________________________

Title
(Corporate Seal of Surety)

Surety

(Attach Attorney-in-Fact Certificate and Required Acknowledgements)

By: __________________________

Signature

______________________________

Print Name

______________________________

Title

______________________________

Address

______________________________

Telephone No.

______________________________

Facsimile No.
DESIGNATION OF SUBCONTRACTORS

In compliance with the Subletting and Subcontracting Fair Practices Act (Public Contract Code Section 4100 et. seq.) and any amendments thereof, each bidder shall set forth below: (a) the name and the location of the place of business of each subcontractor who will perform work or labor or render service to the bidder (prime contractor) in or about the construction of the work or improvement to be performed under this contract or a subcontractor licensed by the State of California who, under subcontract to the bidder (prime contractor), specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of one percent of the bidder's (prime contractor's) total bid and (b) the portion of the work which will be done by each subcontractor. The bidder (prime contractor) shall list only one subcontractor for each such portion as is defined by the bidder (prime contractor) in this bid.

If a bidder (prime contractor) fails to specify a subcontractor or if a bidder (prime contractor) specifies more than one subcontractor for the same portion of work to be performed under the contract in excess of one-half of one percent of the bidder's (prime contractor's) total bid, bidder shall be deemed to have agreed that bidder is fully qualified to perform that portion, and that bidder alone shall perform that portion. Violation of this requirement (including the procurement of a subcontractor for the Project if no subcontractor is specified) can result in the DISTRICT invoking the remedies of Public Contract Code Sections 4110 and 4111.

No bidder (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 of one percent of the bidder's (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 sub contracting of any portion of the work in excess of one-half of one percent of the bidder's (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 DISTRICT awarding this contract setting forth the facts constituting the emergency or necessity.
Bidder agrees that within twenty-four (24) hours of the bid opening, Bidder shall provide the DISTRICT with the license number (if applicable), expiration date of license, complete address and telephone numbers of each listed subcontractor if such information is not available at the time of the bid opening.
Dated: ____________________________  

Name of Bidder

By: ________________________________  
(Signature of Bidder)

Print Name: ____________________________

Address________________________________

________________________________________

________________________________________

Telephone: ______________________________

FAX: ________________________________
NONCOLLUSION AFFIDAVIT

(Public Contract Code Section 7106)

State of California )
) ss.

County of____________________ )
) ______________________

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

________________________________________

Signature of Bidder

NOTARY FOR NONCOLLUSION AFFIDAVIT

Subscribed and sworn to (or affirmed) before me this _______ day of_______, 20____.

________________________________________

Signature of Notary

[SEAL OF NOTARY]

Typed Name of Notary
"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, which 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.

(c) For any county, city, city and county, municipal corporation, public district, public agency or any political subdivision of the state, including each member of a pooling arrangement under a joint exercise of powers agreement (but not the state itself), by securing from the Director of Industrial Relations a certificate of consent to self-insure against workers' compensation claims, which certificate may be given upon furnishing proof satisfactory to the director of ability to administer workers' compensation claims properly, and to pay workers' compensation claims that may become due to its employees. On or before March 31, 1979, a political subdivision of the state which, on December 31, 1978, was uninsured for its liability to pay compensation, shall file a properly completed and executed application for a certificate of consent to self-insure against workers' compensation claims. The certificate shall be issued and be subject to the provisions of Section 3702."

I am aware of the provisions of 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.

_____________________________________
Name of the Contractor

By: _________________________________
Signature

____________________________________
Print Name

____________________________________
Title

____________________________________
Date

(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 the contract.)
CONTRACT PERFORMANCE BOND (CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the South Orange County Community College District (sometimes referred to hereinafter as “Obligee”) has awarded to ________________________________ (hereinafter designated as the “Principal” or “Contractor”), an agreement for the work described as follows: SOCCCD - Saddleback College MAIN ELECTRICAL ROOM SITE DRAINAGE PROJECT District Bid # 2002 (hereinafter referred to as the “Public Work”); and

WHEREAS, the work to be performed by the Contractor is more particularly set forth in that certain contract for said Public Work dated __________________, (hereinafter referred to as the “Contract”), which Contract is incorporated herein by this reference; and

WHEREAS, the Contractor is required by said Contract to perform the terms thereof and to provide a bond both for the performance and guaranty thereof.

NOW, THEREFORE, we, ________________________________, the undersigned Contractor, as Principal, and ________________________________, a corporation organized and existing under the laws of the State of ________________, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the South Orange County Community College District in the sum of not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the bounded Contractor, his or her heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in said Contract and any alteration thereof made as therein provided, on his or her part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill guarantees of all materials and workmanship; and indemnify, defend and save harmless the Obligee, its officers and agents, as stipulated in said Contract, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any change, extension of time, alteration in or addition to the terms of the contract or to the work to be performed there under or the specifications accompanying the same, nor by any change or modification to any terms of payment or extension of time for any payment pertaining or relating to any scheme of work of improvement under the contract. Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any overpayment or underpayment by the Obligee that is based upon estimates approved by the Architect. The Surety stipulates and agrees that none of the aforementioned changes, modifications, alterations, additions, extension of time or actions shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, modifications, alterations, additions or extension of time to the terms of the contract, or to the work, or the specifications as well notice of any other actions that result in the foregoing.

Whenever Principal shall be, and is declared by the Obligee to be, in default under the Contract, the Surety shall promptly either remedy the default, or shall promptly complete the Contract through its agents or independent contractors, subject to acceptance and approval of such agents or independent contractors by Obligee as hereinafter.
set forth, in accordance with its terms and conditions and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages; or, at Obligee’s sole discretion and election, Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Obligee of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as Work progresses (even though there should be a default or succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the “balance of the Contract price” (as hereinafter defined), and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages. The term “balance of the Contract price,” as used in this paragraph, shall mean the total amount payable to Principal by the Obligee under the Contract and any modifications thereto, less the amount previously paid by the Obligee to the Principal, less any withholdings by the Obligee allowed under the Contract.

Surety expressly agrees that the Obligee may reject any agent or contractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal. Unless otherwise agreed by Obligee, in its sole discretion, Surety shall not utilize Principal in completing the Contract nor shall Surety accept a bid from Principal for completion of the work in the event of default by the Principal.

No final settlement between the Obligee and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

Surety shall remain responsible for all patent and latent defects that arise out of or relate to the Contractor’s failure and/or inability to properly complete the Public Work as required by the Contract and the Contract Documents. The obligation of the Surety hereunder shall continue so long as any obligation of the Contractor remains.

Contractor and Surety agree that if the Obligee is required to engage the services of an attorney in connection with enforcement of the bond, Contractor and Surety shall pay Obligee’s reasonable attorneys’ fees incurred, with or without suit, in addition to the above sum.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including reasonable attorneys’ fees to be fixed by the Court.
IN WITNESS WHEREOF, we have hereunto set our hands and seals this ____ day of ____________, 20__.

PRINCIPAL/CONTRACTOR:

________________________________________________________

By:___________________________________________________

SURETY:

______________________________________________________

By: _________________________________________________

Attorney-in-Fact

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

The total amount of premium charged: $______________________ (This must be filled in by a corporate surety).
IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code Section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety’s name must also appear on the Treasury Department’s most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)  (Name and Address of agent or representative for service for service of process in California)

__________________________________  ______________________________________

__________________________________  ______________________________________

Telephone:_________________________  Telephone: ______________________________

STATE OF CALIFORNIA  )
)   ss.
COUNTY OF  )

On ___________________________ before me, ______________________________________

(insert name and title of the officer)

On ____________________________, before me, _________________________, a Notary Public in and for said State, personally appeared _______________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument as the Attorney-in-Fact of the _____________________ (Surety) and acknowledged to me that he/she/they subscribed the name of the _____________________ (Surety) thereto and his own name as Attorney-in-Fact on the executed instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

___________________________________________  (SEAL)

Notary Public in and for said State

Commission expires:_________________________

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.
PAYMENT BOND (CALIFORNIA PUBLIC WORKS)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the South Orange County Community College District (sometimes referred to hereinafter as “Obligee”) has awarded to ________________________________ (hereinafter designated as the “Principal” or “Contractor”), an agreement for the work described as follows: SOCCCD – Saddleback College Main electrical Room site Drainage Project District Bid # 2002 (hereinafter referred to as the “Public Work”); and

WHEREAS, said Contractor is required to furnish a bond in connection with said Contract, and pursuant to California Civil Code Section 3247;

NOW, THEREFORE, We, _______________________________________, the undersigned Contractor, as Principal; and _______________________________________, a corporation organized and existing under the laws of the State of ________________, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the South Orange County Community College District and to any and all persons, companies, or corporations entitled by law to file stop notices under California Civil Code Section 3181, or any person, company, or corporation entitled to make a claim on this bond, in the sum of not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, its heirs, executors, administrators, successors, or assigns, or subcontractor, shall fail to pay any person or persons named in Civil Code Section 3181; or fail to pay for any materials, provisions, or other supplies, used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code, with respect to work or labor thereon of any kind; or shall fail to deduct, withhold, and pay over to the Employment Development Department, any amounts required to be deducted, withheld, and paid over by Unemployment Insurance Code Section 13020 with respect to work and labor thereon of any kind, then said Surety will pay for the same, in an amount not exceeding the amount herein above set forth, and in the event suit is brought upon this bond, also will pay such reasonable attorneys’ fees as shall be fixed by the court, awarded and taxed as provided in California Civil Code Sections 3247 et seq.

This bond shall inure to the benefit of any person named in Civil Code Section 3181 giving such person or his/her assigns a right of action in any suit brought upon this bond.

It is further stipulated and agreed that the Surety of this bond shall not be exonerated or released from the obligation of the bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, or specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described; or pertaining or relating to the furnishing of labor, materials, or equipment therefor; nor by any change or modification of any terms of payment or extension of time for payment pertaining or relating to any scheme or work of improvement herein above described; nor by any rescission or attempted rescission of the contract, agreement or bond; nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond; nor by any fraud practiced by any person other than the claimant seeking to recover on the bond; and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given; and under no circumstances shall the Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the Obligee and the Contractor or on the part of any obligee named in such bond; that the sole condition of recovery shall be that the claimant is a person described in California

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Civil Code Sections 3110 and 3112, and who has not been paid the full amount of his or her claim; and that the Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this_____________ day of _____________, 20___.

PRINCIPAL/CONTRACTOR:

_______________________________________________________

By: _______________________________

SURETY:

_______________________________________________________

By: _______________________________

Attorney-in-Fact
IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code Section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety’s name must also appear on the Treasury Department’s most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)  (Name and Address of agent or representative for service for service of process in California)
__________________________________________  __________________________________________
__________________________________________  __________________________________________
Telephone:_________________________________  Telephone: __________________________________

STATE OF CALIFORNIA  )
) ss.
COUNTY OF  )

On ______________________________ before me, _______________________________________________, (insert name and title of the officer)
a Notary Public in and for said State, personally appeared ______________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument as the Attorney-in-Fact of the _____________________ (Surety) and acknowledged to me that he/she/they subscribed the name of the _____________________ (Surety) thereto and his own name as Attorney-in-Fact on the executed instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_________________________________________ (SEAL)
Notary Public in and for said State
Commission expires:_________________________

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.
AGREEMENT

THIS AGREEMENT, dated the ______ day of _____________, 20__, in the County of Orange, State of California, is by and between South Orange County Community College District, (hereinafter referred to as "DISTRICT"), and ____________________________, (hereinafter referred to as "CONTRACTOR").

The DISTRICT and the CONTRACTOR, for the consideration stated herein, agree as follows:

1. CONTRACTOR agrees to complete the Project known as SOCCCD - Saddleback College Main electrical Room Site Drainage Project District Bid # 2002_ according to all the terms and conditions set forth in the Project Documents, including but not limited to the Notice Calling For Bids, Information for Bidders, Bid Form, Bid Security, Designation of Subcontractors, Information Required of Bidder, all prequalification forms submitted pursuant to Public Contract Code Section 20111.5, if any, Non-collusion Affidavit, Workers' Compensation Certificate, Faithful Performance Bond, Payment Bond, Escrow Agreement, if applicable, Drug-Free Workplace Certification, Change Orders, Shop Drawing Transmittals, Insurance Certificates and Endorsements, Guarantees, Contractor’s Certificate Regarding Non-Asbestos Containing Materials, Disabled Veteran Business Enterprises Certification, if applicable, General Conditions, Supplemental Conditions, if any, Special Conditions, if any, Drawings, Specifications, and all modifications, addenda and amendments thereto by this reference incorporated herein. The Project Documents are complementary, and what is called for by any one shall be as binding as if called for by all.

2. CONTRACTOR shall perform within the time set forth in Paragraph 4 of this Agreement everything required to be performed, and shall provide, furnish and pay for all the labor, materials, necessary tools, expendable equipment, and all taxes, utility and transportation services required for construction of the Project. All of said work shall be performed and completed in a good workmanlike manner in strict accordance with the drawings, specifications and all provisions of this Agreement as hereinabove defined and in accordance with applicable laws, codes, regulations, ordinances and any other legal requirements governing the Project. The CONTRACTOR shall be liable to the DISTRICT for any damages arising as a result of a failure to fully comply with this obligation, and the CONTRACTOR shall not be excused with respect to any failure to so comply by any act or omission of the Architect, Engineer, Inspector, Division of State Architect, or representative of any of them, unless such act or omission actually prevents the CONTRACTOR from fully complying with the requirements of the Project Documents, and unless the CONTRACTOR protests at the time of such alleged prevention that the act or omission is preventing the CONTRACTOR from fully complying with the Project Documents. Such protest shall not be effective unless reduced to writing and filed with the DISTRICT within three (3) working days of the date of occurrence of the act or omission preventing the CONTRACTOR from fully complying with the Project Documents.

3. DISTRICT shall pay to the CONTRACTOR, as full consideration for the faithful performance of this Agreement, subject to any additions or deductions as provided in the Project Documents, the sum of ______________________________________ Dollars ($______________________ ).

4. The work shall be commenced on or before the ______ Fifth (5th) day after receiving the DISTRICT'S Notice to Proceed and shall be completed within seventy five (75) consecutive calendar days from the date specified in the Notice to Proceed.
5. **Time is of the essence.** If the work is not completed in accordance with Paragraph 4 above, it is understood that the DISTRICT will suffer damage. It being impractical and infeasible to determine the amount of actual damage, in accordance with Government Code Section 53069.85, it is agreed that CONTRACTOR shall pay to DISTRICT as fixed and liquidated damages, and not as a penalty, the sum of _______ one thousand _______ Dollars($ 1,000.00 ) for each calendar day of delay until work is completed and accepted. Time extensions may be granted by the DISTRICT as provided in Article 64 of the General Conditions. Liquidated damages shall be imposed as set forth in Article 64 of the General Conditions.

6. Termination for Cause or Non-appropriation. In the event CONTRACTOR defaults in the performance of the Agreement as set forth in General Conditions Article 13(a) or if there is a non-appropriation of funds or insufficient funds as set forth in General Conditions Article 13(d), then this Agreement shall terminate or be suspended as set forth in General Conditions Article 13.

Termination for Convenience. DISTRICT 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 DISTRICT of such termination for DISTRICT’s convenience, CONTRACTOR shall:

(i) Cease operations as directed by DISTRICT in the notice;

(ii) Take any actions necessary, or that DISTRICT may direct, for the protection and preservation of the work; and

(iii) Not terminate any insurance provisions required by the Project Documents.

In case of such termination for DISTRICT’s convenience, CONTRACTOR shall be entitled to receive payment from DISTRICT 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, DISTRICT 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 the DISTRICT.

7. Hold Harmless and Indemnification. To the fullest extent permitted by law, the CONTRACTOR, at the CONTRACTOR’s sole cost and expense, agrees to fully defend, indemnify and hold harmless, the DISTRICT, including but not limited to any of its governing board members, officers, employees, Construction Manager, Architect, and all other Agents and Representatives, from and against any and all claims, actions, demands, costs, judgments, liens, penalties, liabilities, damages, losses, anticipated losses of revenues, and expenses, including any fees of accountants, attorneys or other professionals, arising out of, in connection with, resulting from or related to, or claimed to be arising out of, in connection with, resulting from or related to any act or omission by the CONTRACTOR or any of its officers, agents, employees, subcontractors, sub-subcontractors, any person performing any of the work pursuant to a direct or indirect contract with the CONTRACTOR or individual entities comprising the CONTRACTOR, in connection with or relating to, or claimed to be in connection with or relating to the work, this Agreement, or the Project, including but not limited to any costs or liabilities arising out of or in connection with:

(a) failure to comply with any applicable law, statute, code, ordinance, regulation, permit or orders;

(b) any misrepresentation, misstatement or omission with respect to any statement made in the Project Documents or any document furnished by the CONTRACTOR in connection therewith;

(c) any breach of duty, obligation or requirement under the Project Documents;

(d) any failure to coordinate the work of other contractors;
(e) any failure to provide notice to any party as required under the Project Documents;
(f) any failure to act in such a manner as to protect the DISTRICT and the Project from loss, cost, expense or liability; or
(g) any failure to protect the property of any utility company or property owner.

This indemnity shall survive termination of the contract or final payment thereunder. This indemnity is in addition to any other rights or remedies which the DISTRICT may have under the law or under the Project Documents. In the event of any claim or demand made against any party which is entitled to be indemnified hereunder, the DISTRICT may in its sole discretion reserve, retain or apply any monies due to the CONTRACTOR under the Project Documents for the purpose of resolving such claims; provided, however, that the DISTRICT may release such funds if the CONTRACTOR provides the DISTRICT with reasonable assurance of protection of the DISTRICT’s interests. The DISTRICT shall in its sole discretion determine whether such assurances are reasonable.

8. CONTRACTOR shall take out, prior to commencing the work, and maintain, during the life of this Agreement, and shall require all subcontractors, if any, whether primary or secondary, to take out and maintain the insurance coverages set forth below and in Articles 16, 17, 18 and 19 of the General Conditions. CONTRACTOR agrees to provide all evidences of coverage required by DISTRICT including certificates of insurance and endorsements.

<table>
<thead>
<tr>
<th>Insurance Coverage</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Liability Insurance for injuries</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>including accidental death, to any one person in an amount not less than</td>
<td></td>
</tr>
<tr>
<td>Subcontractors of every tier</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Property Damage Insurance</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>in an amount not less than</td>
<td></td>
</tr>
<tr>
<td>Subcontractors of every tier</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Course of Construction Insurance without exclusion</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>or limitation in an amount not less than</td>
<td></td>
</tr>
<tr>
<td>Subcontractors of every tier</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Excess Liability Insurance (Contractor only)</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Insurance Covering Special Hazards:</td>
<td></td>
</tr>
<tr>
<td>Automotive and truck where operated in amounts as above</td>
<td></td>
</tr>
<tr>
<td>Material hoist where used in amounts as above</td>
<td></td>
</tr>
</tbody>
</table>
Waiver Of Subrogation

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

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

Additional Insured Endorsement Requirements.

The Contractor shall name, on any policy of insurance required the District, their officers, employees, Construction Manager, Architect, and all other Agents and Representatives as additional insureds. Subcontractors shall name the Contractor, the District, their officers, employees, Construction Manager, Architect, and all other Agents and Representatives as additional insureds. The Additional Insured Endorsement included on all such insurance policies shall state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the additional insureds have other insurance that is applicable to the loss, such other insurance shall be on an excess or contingent basis. The insurance provided by the Contractor must be designated in the policy as primary to any insurance obtained by the District. The amount of the insurer’s liability shall not be reduced by the existence of such other insurance.

9. Public Contract Code Section 22300 permits the substitution of securities for any retention monies withheld by the DISTRICT to ensure performance under this Agreement. At the request and expense of the CONTRACTOR, securities equivalent to the monies withheld shall be deposited with the DISTRICT, or with a state or federally chartered bank in California as the escrow agent, who shall then pay such monies to the CONTRACTOR. The DISTRICT retains the sole discretion to approve the bank selected by the CONTRACTOR to serve as escrow agent. Upon satisfactory completion of the Agreement, the securities shall be returned to the CONTRACTOR. Securities eligible for investment shall include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit. The 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, the CONTRACTOR may request DISTRICT to make payment of earned retention monies directly to the escrow agent at the expense of the CONTRACTOR. Also at the CONTRACTOR's expense, the CONTRACTOR may direct investment of the payments into securities, and the CONTRACTOR shall receive interest earned on such investment upon the same conditions as provided for securities deposited by CONTRACTOR. Upon satisfactory completion of the Agreement, CONTRACTOR shall receive from the escrow agent all securities, interest and payments received by escrow agent from DISTRICT pursuant to the terms of Section 22300.

10. If CONTRACTOR is a corporation, the undersigned hereby represents and warrants that the corporation is duly incorporated and in good standing in the State of _________________, and that _________________, whose title is _________________, is authorized to act for and bind the corporation.

11. Each and every provision of law and clause required by law to be inserted in this Agreement shall be deemed to be inserted herein and the Agreement shall be read and enforced as though it were included herein, and
if through mistake or otherwise any such provision is not inserted, or is not currently inserted, then upon application of either party the Agreement shall forthwith be physically amended to make such insertion or correction.

12. This Agreement constitutes the entire agreement of the parties. No other agreements, oral or written, pertaining to the work to be performed, exists between the parties. This Agreement can be modified only by an amendment in writing, signed by both parties and pursuant to action of the Governing Board of the District. This Agreement shall be governed by the laws of the State of California.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed.

DISTRICT

By: ________________________________
    Signature

Print Name

Title

Contractor's License No.

Tax ID/Social Security No.

CONTRACTOR

By: ________________________________
    Signature

Print Name

Title

(CORPORATE SEAL OF CONTRACTOR, if corporation)
This Escrow Agreement is made and entered into, as of ______________, 20_____, by and between South Orange County Community College District, whose address is 28000 Marguerite Parkway, Mission Viejo, CA 92692 hereinafter called "DISTRICT;" ______________, whose address is ___________________________, hereinafter called "Contractor;" and, ______________, whose address is ___________________________, hereinafter called "Escrow Agent."

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

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by DISTRICT pursuant to the Agreement entered into between the DISTRICT and Contractor for ______________ in the amount of ______________, dated ______________ (hereinafter referred to as the "Agreement"). Alternatively, on written request of the Contractor, the DISTRICT shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for retention earnings, the Escrow Agent shall notify the DISTRICT within ten (10) days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Agreement between the DISTRICT and Contractor. Securities shall be held in the name of DISTRICT, and shall designate the Contractor as the beneficial owner.

(2) The DISTRICT shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the DISTRICT makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time 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 DISTRICT pays the Escrow Agent directly.

(4) 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 DISTRICT. These expenses and payment terms shall be determined by the DISTRICT, 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 DISTRICT.

(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 the DISTRICT to the Escrow Agent that DISTRICT consents to the withdrawal of the amount sought to be withdrawn by Contractor.
(7) The DISTRICT shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven (7) days' written notice to the Escrow Agent from the DISTRICT of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the DISTRICT.

(8) Upon receipt of written notification from the DISTRICT certifying that the Agreement is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Agreement, 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 monies and securities on deposit and payments of fees and charges.

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

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the DISTRICT and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of DISTRICT: On behalf of Contractor:

Title

Name

Signature

Address
On behalf of Escrow Agent:

Title

Name

Signature

Address

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

IN WITNESS WHEREOF, the parties have executed this Escrow Agreement by their proper officers on the date first set forth above.

DISTRICT

Title

Name

Signature

CONTRACTOR

Title

Name

Signature

Escrow Agent

Title

Name

Signature
GUARANTEE

Guarantee for Saddleback College – Main Electrical Room Site Drainage Project Bid #2002. We hereby guarantee that the ______________, which we have installed in ______________, has been done in accordance with the Project Documents and that the work as installed will fulfill the requirements included in the Project Documents. The undersigned agrees to repair or replace any or all of such work, together with any other adjacent work which may be displaced in connection with such repair or replacement, that may prove to be defective in workmanship or material within a period of one (1) year from the date of completion of the Project, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of the undersigned's or undersigned surety’s failure to commence and pursue with diligence said repairs or replacements within ten (10) calendar days after being notified in writing by the DISTRICT, the undersigned authorizes the DISTRICT to proceed to have said defects repaired or replaced and made good at the expense of the undersigned and surety who hereby agree to pay the costs and charges therefore immediately upon demand. (General Conditions Article 47(d))

________________________________________________________________________

Name of Contractor

By: _____________________________________________________________________

Signature of Contractor

________________________________________________________________________

Print Name

________________________________________________________________________

Title

Contractor shall provide copy of this Guarantee to Contractor’s surety.
Guarantee (continued)

Name of Subcontractor
(if work performed by subcontractor)

By: __________________________
Signature of Subcontractor

________________________________________
Print Name

________________________________________
Title

Representatives to be contacted for service:

Name: __________________________

Address: __________________________

Telephone: __________________________
This Drug-Free Workplace Certification is required pursuant to Government Code Sections 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 for the procurement of any property or services from any State agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract awarded by a State agency may be subject to suspension of payments or termination of the contract and the contractor may be subject to debarment from future contracting, if the state agency determines that specified acts have occurred.

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

a) 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;

b) establishing a drug-free awareness program to inform employees about all of the following:

1) the dangers of drug abuse in the workplace;

2) the person's or organization's policy of maintaining a drug-free workplace;

3) the availability of drug counseling, rehabilitation and employee-assistance programs;

4) the penalties that may be imposed upon employees for drug abuse violations;

c) requiring that each employee engaged in the performance of the contract be given a copy of the statement required by subdivision (a) and that, as a condition of employment on the contract, 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 publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the contract be given a copy of the statement required by Section 8355(a) and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the DISTRICT 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 suspension of payments, termination, 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.

____________________________
NAME OF CONTRACTOR

____________________________
Signature

____________________________
Print Name

____________________________
Title

____________________________
Date
CHANGE ORDER NO. __________ (ADDITIVE)

PROJECT: ________________________________________________________________

TO: ___________________________________________________________________

You are hereby directed to provide the extra work necessary to comply with this Change Order.

DESCRIPTION OF CHANGE: _____________________________________________

COST (This cost shall not be exceeded.):

Original contract price: $ ______________
Change Order amount: $ ______________
New contract price: $ ______________

TIME FOR COMPLETION:

Original completion date: ______________
Time for completion of
Change Order: ______________
New completion date: ______________

Contractor agrees to perform the above-described work in accordance with the above terms and in compliance with applicable sections of the Project Documents. The amount of the charges under this Change Order is limited to the charges allowed under Article 60 of the General Conditions. The adjustment in the contract sum, if any, and the adjustment in the contract time, if any, set out in this 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 this Change Order, unless otherwise provided in this Change Order.

No additions or deletions to this Change Order shall be allowed, except with written permission of District. Contractor accepts the terms and conditions stated above as full and final settlement of any and all claims arising from this Change Order.

(continued on next page)
Change Order #____________________________  Project:__________________________________

This Change Order is hereby agreed to, accepted and approved.

CONTRACTOR

By:________________________________________
   Signature

________________________________________
   Print Name

________________________________________
   Title

________________________________________
   Date

DISTRICT

By:________________________________________
   Signature

________________________________________
   Print Name

________________________________________
   Title

________________________________________
   Date

ARCHITECT

By:________________________________________
   Signature

________________________________________
   Print Name

________________________________________
   Title

________________________________________
   Date
CHANGE ORDER NO. ________________  (DEDUCTIVE)

PROJECT: ____________________________________________________________

TO: ________________________________________________________________

You are hereby directed to comply with this Change Order.

DESCRIPTION OF CHANGE: __________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

COST (This cost shall be deleted.):

Original contract price: $ ________________

Change Order amount: $ ________________

New contract price: $ ________________

TIME FOR COMPLETION:

Original completion date: ________________

Time for completion of

Change Order: ________________

New completion date: ________________

Contractor agrees to deduct the above-described work in accordance with the above terms and in compliance with applicable sections of the Project Documents. Contractor agrees to the adjustment in the contract sum, if any, and the adjustment in the contract time, if any, set out in this Change Order.

No additions or deletions to this Change Order shall be allowed, except with written permission of District. Contractor accepts the terms and conditions stated above as full and final settlement of any and all claims arising from this Change Order.

(continued on next page)
Change Order #____________________________  Project:____________________________

This Change Order is hereby agreed to, accepted and approved.

CONTRACTOR

By: ________________________________

________________________________
Print Name

________________________________
Title

________________________________
Date

DISTRICT

By: ________________________________

________________________________
Print Name

________________________________
Title

________________________________
Date

ARCHITECT

By: ________________________________

Signature

________________________________
Print Name

________________________________
Title

________________________________
Date

Schools Legal Service of O.C.
May 2002

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CONTRACTOR’S CERTIFICATE REGARDING NON-ASBESTOS CONTAINING MATERIALS

Per Article 70 of the General Conditions.

Certification for  Saddleback College – Main electrical Room Site Drainage Project. We hereby certify that no Asbestos, or Asbestos Containing Materials shall be used in this Project or in any tools, devices, clothing, or equipment used to affect the ____________________________ which we have installed in the South Orange County Community College District under Project/Bid No.____2001____.

(a) The Contractor further certifies that he/she has instructed his/her employees with respect to the above mentioned standards, hazards, risks and liabilities.
(b) Asbestos and/or asbestos containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite and actinolite.
(c) Any or all material containing greater than one-tenth of one percent (.1%) asbestos shall be defined as asbestos containing material.
(d) Any disputes involving the question of whether or not material contains asbestos shall be settled by electron microscopy. The costs of any such tests shall be paid by the Contractor if the material is found to contain asbestos.
(e) All work or materials found to contain asbestos or work or material installed with asbestos containing equipment will be immediately rejected and this work will be removed at no additional cost to the District.

________________________________________  _______________________________________
Date  Name of Contractor

By: ______________________________________
     Signature

________________________________________
Print Name

________________________________________
Title

Schools Legal Service of O.C.  Bid Forms
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ARTICLE 1. DEFINITIONS

(a) Action of the Governing Board is a vote of a majority of the members in a lawful meeting.

(b) Addenda are the changes in plans, specifications, drawings, and/or Project Documents which have been authorized in writing by the DISTRICT or ARCHITECT, and which alter, explain, or clarify the Project Documents prior to the bid deadline.

(c) Agents & Representatives includes all project participants holding contract with the DISTRICT other than the CONTRACTOR.

(d) Agreement includes collectively all Project Documents.

(e) Approval means written authorization by ARCHITECT or DISTRICT.

(f) CONTRACTOR or DISTRICT are those mentioned as such in the Agreement. They are treated throughout the Project Documents as if they are of singular number and neuter gender.

(g) Day shall be defined as business day unless otherwise noted.

(h) DISTRICT is the Governing Board or its duly authorized representative.

(i) Locality in which the work is performed means the county and city in which the work is done.

(j) Project is the planned undertaking as provided for in the Project Documents by DISTRICT and CONTRACTOR.

(k) Project Documents includes collectively, to wit: Notice Calling for Bids, Information for Bidders, Bid Form, Bid Security, Designation of Subcontractor form, Information Required of Bidder, all prequalification forms submitted pursuant to Public Contract Code Section 20111.5, if any, Noncollusion Affidavit, Workers’ Compensation Certificate, Faithful Performance Bond, Payment Bond, Agreement, Escrow Agreement, Drug-Free Workplace Certification, Change Order forms, Shop Drawing Transmittals form, Insurance Certificates and Endorsements, Guarantee form, Contractor’s Certificate Regarding Non-Asbestos Containing Materials, General Conditions, Supplemental Conditions, if any, Special Conditions, if any, Drawings, Specifications, and all modifications, addenda and amendments thereto. The Project Documents are complementary, and what is called for by any one shall be as binding as if called for by all.

(l) Provide shall include "provide complete in place," that is, "furnish and install."
(l) Safety Orders are those issued by the Division of Industrial Safety and OSHA safety and health standards for construction.

(m) Standards, Rules, and Regulations referred to are recognized printed standards and shall be considered as one and a part of these specifications within limits specified.

(n) Subcontractor, as used herein, includes those having a direct contractual relationship with CONTRACTOR and one who furnishes material worked to a special design according to plans, drawings, and specifications, but does not include one who merely furnishes material not so worked.

(o) Surety is the person, firm, or corporation that executes as a California admitted surety insurer, the CONTRACTOR's Bid Security, faithful performance bond and payment bond.

(p) Work of the CONTRACTOR or subcontractor includes labor or materials (including, without limitation, equipment and appliances) or both, incorporated in, or to be incorporated in the Project.

(q) Workers includes laborer, worker, or mechanic.

(r) Working day is defined as business day.

**ARTICLE 2. STATUS OF 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 Project Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the DISTRICT and CONTRACTOR or any of CONTRACTOR's agents or employees. CONTRACTOR assumes exclusively 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 DISTRICT employees and shall not be considered in any manner to be DISTRICT employees. DISTRICT shall be permitted to monitor the activities of the CONTRACTOR to determine compliance with the terms of the Project Documents.

(b) 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 contract will be considered void pursuant to Section 7028.7 of the Business and Professions Code. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, 9821 Business Park Drive, P. O. Box 26000, Sacramento, CA 95826.

**ARTICLE 3. CHANGE IN NAME AND 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 the DISTRICT in writing and cooperate with DISTRICT in making such changes as the DISTRICT may request in the Project Documents.
ARTICLE 4. CONTRACTOR'S SUPERVISION, PROSECUTION AND PROGRESS

(a) During progress of the work, CONTRACTOR shall keep on the work site a competent superintendent satisfactory to DISTRICT. Before commencing the work herein, CONTRACTOR shall give written notice to DISTRICT and ARCHITECT of the name, qualifications and experience of such superintendent. If Superintendent is found unsatisfactory by DISTRICT, CONTRACTOR shall replace the Superintendent with one acceptable to the DISTRICT. Superintendent shall not be changed except with written consent of DISTRICT, unless a superintendent proves to be unsatisfactory to CONTRACTOR and ceases to be in its employ, in which case, CONTRACTOR shall notify DISTRICT and ARCHITECT in writing and replace said Superintendent with one acceptable to the DISTRICT. Superintendent shall represent CONTRACTOR and all directions given to Superintendent shall be as binding as if given to CONTRACTOR.

(b) CONTRACTOR shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills as may be necessary to perform the work in accordance with the Project Documents. CONTRACTOR shall carefully study and compare all plans, drawings, specifications, and other instructions and shall at once report to ARCHITECT any error, inconsistency or omission which CONTRACTOR or its employees may discover. The CONTRACTOR represents itself to DISTRICT as a skilled, knowledgeable, and experienced CONTRACTOR. The CONTRACTOR shall carefully study and compare the Project Documents with each other, and shall at once report to the ARCHITECT any errors, inconsistencies, or omissions discovered. The CONTRACTOR shall be liable to the DISTRICT for damage resulting from errors, inconsistencies, or omissions in the Project Documents that the CONTRACTOR recognized and which CONTRACTOR knowingly failed to report and which a similarly skilled, knowledgeable, and experienced contractor would have discovered.

(c) The CONTRACTOR shall verify all indicated dimensions before ordering materials or equipment, or before performing work. The CONTRACTOR shall take field measurements, verify field conditions, and shall carefully compare such field measurements and conditions and other information known to the CONTRACTOR with the Project Documents before commencing work. Errors, inconsistencies or omissions discovered shall be reported to the DISTRICT at once. Upon commencement of any item of work, the CONTRACTOR shall be responsible for dimensions related to such item of work and shall make any corrections necessary to make work properly fit at no additional cost to DISTRICT. This responsibility for verification of dimensions is a non-delegable duty and may not be delegated to subcontractors or agents.

(d) Omissions from the plans, drawings or specifications, or the misdescription 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 the CONTRACTOR from performing such omitted or misdescribed work, but they shall be performed as if fully and correctly set forth and described in the plans, drawings and specifications.

(e) The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The CONTRACTOR shall be responsible to see that the finished work complies accurately with the Project Documents.

ARTICLE 5. SUBCONTRACTORS
(a) CONTRACTOR agrees to bind every subcontractor by terms of the Project Documents as far as such terms are applicable to subcontractor's work. If CONTRACTOR shall subcontract any part of the work, CONTRACTOR shall be as fully responsible to DISTRICT for acts and omissions of any subcontractor and of persons either directly or indirectly employed by any subcontractor, as it is for acts and omissions of persons directly employed by CONTRACTOR. Nothing contained in Project Documents shall create any contractual relation between any subcontractor and DISTRICT, nor shall the contract documents be construed to be for the benefit of any subcontractor.

(b) DISTRICT’s consent to any subcontractor shall not in any way relieve CONTRACTOR of any obligations under the Project Documents and no such consent shall be deemed to waive any provision of any Project Document.

(c) CONTRACTOR must submit with its bid, a Designation of Subcontractors pursuant to the Subletting and Subcontracting Fair Practices Act. 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, unless CONTRACTOR provides for substitution or addition of subcontractors. Substitution or addition of subcontractors shall be permitted only as authorized under the Subletting and Subcontracting Fair Practices Act, Public Contract Code Section 4100, et seq.

(d) In accordance with Business and Professions Code Section 7059, if CONTRACTOR is designated as a "specialty contractor" (as defined in Section 7058 of the Public Contract Code), all of the work to be performed outside of the CONTRACTOR’s license specialty shall be performed by a licensed subcontractor in compliance with the Subletting and Subcontracting Fair Practices Act, Public Contract Code Section 4100, et seq.

(e) 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 the DISTRICT before the subcontractor begins work. Each subcontract shall contain a reference to the Agreement between the DISTRICT and the CONTRACTOR and the terms of that Agreement and all parts of the Project Documents shall be made a part of such subcontract insofar as applicable to the work covered thereby. Each subcontract will provide for termination in accordance with Article 13 of these General Conditions. Each subcontract shall provide for its annulment by the CONTRACTOR at the order of the ARCHITECT if in the ARCHITECT'S opinion the subcontractor fails to comply with the requirements of the Project Documents insofar as the same may be applicable to this work. Nothing herein contained shall relieve the CONTRACTOR of any liability or obligation hereunder.

(f) A CONTRACTOR may not permit a subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code to bid on, be awarded, or perform work as a subcontractor on a public works project.

ARTICLE 6. PROHIBITED INTERESTS

No official of DISTRICT who is authorized in such capacity and on behalf of DISTRICT 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 become directly or indirectly interested financially in this Project or in any part thereof. No
officer, employee, architect, attorney, engineer or inspector of or for DISTRICT who is authorized in such capacity and on behalf of DISTRICT to exercise any executive, supervisory or other similar functions in connection with construction of Project shall become directly or indirectly interested financially in this Project or in any part thereof. CONTRACTOR shall receive no compensation and shall repay DISTRICT for any compensation received by CONTRACTOR hereunder, should CONTRACTOR aid, abet or knowingly participate in violation of this Article 6.

ARTICLE 7. DISTRICT'S INSPECTOR

(a) One or more Inspector(s), including special inspectors, as required, will be employed by DISTRICT and will be assigned to the Project.

(b) No work shall be performed by the CONTRACTOR solely upon the instructions or comments by the Inspector. The Inspector has no authority to interpret the Project Documents or order extra work and any extra work performed without the written instruction of the DISTRICT shall be at CONTRACTOR’s sole cost and expense and there will be no delay damages incurred by DISTRICT for such work.

(c) No work shall be carried on except with the knowledge and under the inspection of said Inspector(s). He/she shall have free access to any or all parts of work at any time. CONTRACTOR shall furnish Inspector reasonable opportunities for obtaining such information as may be necessary to keep Inspector fully informed respecting progress and manner of work and character of materials. Inspection of work shall not relieve CONTRACTOR from any obligation to fulfill the Project Documents. Inspector or ARCHITECT shall have authority to stop work whenever provisions of Project Documents are not being complied with and such noncompliance is discovered. CONTRACTOR shall instruct its employees accordingly.

(d) CONTRACTOR understands and agrees that the Inspector for the Project may also serve concurrently as inspector for other DISTRICT projects and may not therefore be available on site during the entire work day. It shall be the responsibility of CONTRACTOR to notify the Inspector not less than twenty-four (24) hours in advance of materials and equipment deliveries and required inspections.

ARTICLE 8. ARCHITECT'S STATUS

(a) The ARCHITECT shall be the DISTRICT’s representative during construction and shall observe the progress and quality of the work on behalf of the DISTRICT. ARCHITECT shall have the authority to act on behalf of DISTRICT only to the extent expressly provided in the Project Documents. ARCHITECT shall have authority to stop work whenever such stoppage may be necessary in ARCHITECT'S reasonable opinion to ensure the proper execution of the Project Documents.

(b) The ARCHITECT shall be, in the first instance, the judge of the performance of the work. ARCHITECT shall exercise authority under the Project Documents to enforce CONTRACTOR’s faithful performance.

(c) The ARCHITECT shall have all authority and responsibility established by law. The ARCHITECT has the authority to enforce compliance with the Project Documents and the CONTRACTOR shall promptly comply with instructions from the ARCHITECT or an authorized representative of the ARCHITECT.
(d) On all questions related to the quantities, the acceptability of material, equipment or workmanship, the execution, progress or sequence of work, the interpretation of plans, specifications or drawings, and the acceptable performance of the CONTRACTOR pursuant to the decision of the ARCHITECT shall govern and shall be precedent to any payment unless otherwise ordered by the Governing Board. The progress and completion of the work shall not be impaired or delayed by virtue of any question or dispute arising out of or related to the foregoing matters and the instructions of the ARCHITECT relating thereto.

(e) General supervision and direction of the work by the ARCHITECT shall in no way imply that the ARCHITECT or his or her representatives are in any way responsible for the safety of the CONTRACTOR or its employees or that the ARCHITECT or his or her representatives will maintain supervision over the CONTRACTOR's construction methods or personnel other than to ensure that the quality of the finished work is in accordance with the Project Documents.

ARTICLE 9. NOTICE OF TAXABLE POSSESSORY INTEREST

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

ARTICLE 10. ASSIGNMENT OF ANTITRUST ACTIONS

Public Contract Code Section 7103.5 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 (DISTRICT) 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. Section 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.

CONTRACTOR, for itself and all subcontractors, agrees to assign to DISTRICT all rights, title, and interest in and to all such causes of action CONTRACTOR and all subcontractors may have under the Agreement. This assignment shall become effective at the time DISTRICT tenders final payment to the CONTRACTOR and CONTRACTOR shall require assignments from all subcontractors to comply herewith.

ARTICLE 11. OTHER CONTRACTS

(a) DISTRICT 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 properly connect and coordinate its work with such other contractors.
(b) If any part of CONTRACTOR's work depends for proper execution or results upon work of any other contractor, the CONTRACTOR shall inspect and promptly report to ARCHITECT in writing any defects in such work that render it unsuitable for such proper execution and results. CONTRACTOR will be held accountable for damages to DISTRICT for that work which it failed to inspect or should have inspected. CONTRACTOR's failure to inspect and report shall constitute its acceptance of other contractor's work as fit and proper for reception of its work, except as to defects which may develop in other contractors' work after execution of CONTRACTOR's work.

(c) To ensure proper execution of its subsequent work, CONTRACTOR shall measure and inspect work already in place and shall at once report to the ARCHITECT in writing any discrepancy between executed work and Project Documents.

(d) CONTRACTOR shall ascertain to its own satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by DISTRICT in prosecution of the Project to the end that CONTRACTOR may perform this Agreement in the light of such other contracts, if any.

(e) Nothing herein contained shall be interpreted as granting to CONTRACTOR exclusive occupancy at site of Project. CONTRACTOR shall not cause any unnecessary hindrance or delay to any other contractor working on Project. If simultaneous execution of any contract for Project is likely to cause interference with performance of some other contract or contracts, DISTRICT shall decide which contractor shall cease work temporarily and which contractor shall continue or whether work can be coordinated so that contractors may proceed simultaneously.

(f) DISTRICT shall not be responsible for any damages suffered or extra costs incurred by CONTRACTOR resulting directly or indirectly from award or performance or attempted performance of any other contract or contracts on Project, or caused by any decision or omission of DISTRICT respecting the order of precedence in performance of contracts.

ARTICLE 12. OCCUPANCY

DISTRICT reserves the right to occupy buildings and/or portions of the site at any time before completion, and such occupancy shall not constitute final acceptance of any part of work covered by this Agreement, nor shall such occupancy extend the date specified for completion of the work. Beneficial occupancy of building(s) does not commence any warranty period nor shall it entitle CONTRACTOR to any additional compensation due to such occupancy.

ARTICLE 13. DISTRICT’S RIGHT TO TERMINATE AGREEMENT

(a) Termination for Cause. If the CONTRACTOR refuses or fails to complete the work or any separable part thereof with such diligence as will insure its completion within the time specified or any extension thereof, or fails to complete said work within such time, or if the CONTRACTOR should file a petition for relief as a debtor, or should relief be ordered against CONTRACTOR as a debtor under Title 11 of the United States Code, or if CONTRACTOR should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should refuse or should fail to supply enough properly skilled workers or proper equipment, tools, and materials in the necessary quantity and quality to complete the work in the time specified, or if CONTRACTOR should fail to make prompt payment to subcontractors for
materials or labor, or disregard laws or ordinances or instructions of DISTRICT, or if CONTRACTOR or its subcontractors should otherwise be guilty of a violation of any provision of this Agreement, then CONTRACTOR shall be deemed to be in default of the Agreement and DISTRICT may, without prejudice to any other right or remedy, serve written notice upon CONTRACTOR and its surety of DISTRICT’s intention to terminate this Agreement, such notice to contain the reasons for such intention to terminate, and unless within ten (10) calendar days after the service of such notice such condition shall cease or such violation shall cease, or arrangements satisfactory to DISTRICT for the correction thereof be made and corrective action commenced in a diligent and workmanlike manner and pursued to satisfactory completion, this Agreement shall upon the expiration of said ten (10) calendar days, cease and terminate. In such case, CONTRACTOR shall be excluded from the worksite and not be entitled to receive any further payment until work is finished to DISTRICT’s satisfaction.

(b) In the event of any such termination, surety shall have the right to take over and perform this Agreement, provided, however, that if surety within five (5) calendar days after service upon it of said notice of termination does not give DISTRICT written notice of its intention to take over and perform this Agreement or does not commence performance thereof within ten (10) calendar days after date of serving such notice of termination by DISTRICT on surety, DISTRICT may take over the work and prosecute same to completion by any means determined by DISTRICT including hiring another contractor for the account and at the expense of CONTRACTOR, and CONTRACTOR and its surety shall be liable to DISTRICT for any excess cost or other damages occasioned by the DISTRICT thereby. Time is of the essence in this Agreement. If the DISTRICT takes over the work as hereinabove provided, the DISTRICT may, without liability for so doing, take possession of and utilize in completing the work such materials, supplies, equipment and other property belonging to the CONTRACTOR as may be on the site of the work and necessary therefore.

(c) The expense of finishing the work, including compensation for additional architectural, managerial, and administrative services, shall be a charge against CONTRACTOR and CONTRACTOR agrees that the charge may be deducted from any money due or becoming due to CONTRACTOR from DISTRICT or CONTRACTOR shall pay the charge to the DISTRICT. Expense incurred by DISTRICT as herein provided, and damage incurred through CONTRACTOR's default, shall be certified to DISTRICT by ARCHITECT. The surety shall become liable for payment should CONTRACTOR fail to pay in full any cost incurred by the DISTRICT.

(d) Nonappropriation of Funds/Insufficient Funds. In the event that sufficient funds are not appropriated to complete the Project or the DISTRICT determines that sufficient funds are not available to complete the Project, DISTRICT may terminate or suspend the completion of the Project at any time by giving written notice to the CONTRACTOR. In the event that the DISTRICT exercises this option, the DISTRICT shall pay for any and all work and materials completed or delivered onto the site, and the value of any and all work then in progress and orders actually placed which cannot be canceled up to the date of notice of termination. The value of work and materials paid for shall include a factor of fifteen percent (15%) for the CONTRACTOR's overhead and profit and there shall be no other costs or expenses paid to CONTRACTOR. All work, materials and orders paid for pursuant to this provision shall become the property of the DISTRICT. DISTRICT may, without cause, order CONTRACTOR in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as DISTRICT may determine. Adjustment shall be made for increases in the cost of performance of the Agreement caused by suspense, delay or interruption.

(e) The foregoing provisions are in addition to and not a limitation of any other rights or remedies available to the DISTRICT.
ARTICLE 14. BONDS

Unless otherwise specified in Special Conditions, CONTRACTOR shall furnish a surety bond in an amount equal to one hundred percent (100%) of contract price as security for faithful performance of this Agreement and shall furnish a separate bond in an amount of one hundred percent (100%) of the contract price as security for payment to persons performing labor and furnishing materials in connection with this Project. Bonds shall be in the form set forth in these Project Documents.

ARTICLE 15. SUBSTITUTION OF SECURITIES

(a) Pursuant to the requirements of Public Contract Code Section 22300, upon CONTRACTOR's request, DISTRICT will make payment to CONTRACTOR of any earned retention funds withheld from payments under this Agreement if CONTRACTOR deposits with the DISTRICT or in escrow with a California or federally chartered bank acceptable to DISTRICT, securities eligible for the investment pursuant to Government Code Section 16430 or bank or savings and loan certificates of deposit, upon the following conditions:

(1) CONTRACTOR shall be the beneficial owner of any securities substituted for retention funds withheld and shall receive any interest thereon.

(2) All expenses relating to the substitution of securities under said Section 22300 and under this Article 15, including, but not limited to DISTRICT’s overhead and administrative expenses, and expenses of escrow agent shall be the responsibility of the CONTRACTOR.

(3) If CONTRACTOR shall choose to enter into an escrow agreement, such agreement shall be in the form as set forth in Public Contract Code section 22300(f) attached hereto as part of the Project Documents and which shall allow for the conversion to cash to provide funds to meet defaults by the CONTRACTOR including, but not limited to, termination of the CONTRACTOR's control over the work, stop notices filed pursuant to law, assessment of liquidated damages or amount to be kept or retained under the provisions of the Project Documents.

(4) Securities, if any, shall be returned to CONTRACTOR only upon satisfactory completion of the Agreement.

(b) To minimize the expense caused by such substitution of securities, CONTRACTOR shall, prior to or at the time CONTRACTOR requests to substitute security, deposit sufficient security to cover the entire amount to be then withheld and to be withheld under the General Conditions of this Agreement. Should the value of such substituted security at any time fall below the amount for which it was substituted, or any other amount which the DISTRICT determines to withhold, CONTRACTOR shall immediately, and at CONTRACTOR's expense, deposit additional security qualifying under said Section 22300 until the total security deposited is no less than equivalent to the amount subject to withholding under the Agreement.

(c) In the alternative, under Section 22300, CONTRACTOR, at its own expense, may request DISTRICT to make payment of earned retention funds directly to the escrow agent. Also at the expense of CONTRACTOR, CONTRACTOR may direct investment of the payments into securities, and CONTRACTOR shall receive the interest earned on the investment upon the same conditions as shown in paragraph (a) for
Article 15. Escrow Accounts

(d) If any provision of this Article 15 shall be found to be illegal or unenforceable, then, notwithstanding, this Article 15 shall remain in full force and effect, and such provision shall be deemed stricken.

Article 16. Fire Insurance

CONTRACTOR will procure at CONTRACTOR’s own expense and before commencement of any work under this Agreement, fire insurance on the Project. Amount of fire insurance shall be sufficient to protect against loss or damage in full until work is accepted by DISTRICT. CONTRACTOR shall submit proof of insurance and shall provide endorsements on forms provided by the DISTRICT or on forms approved by the DISTRICT.

Article 17. Public Liability and Property Damage Insurance

(a) CONTRACTOR shall take out and maintain during the life of this Agreement such public liability and property damage insurance as shall protect CONTRACTOR and DISTRICT from all claims for personal injury, including accidental death, to any person (including, as to DISTRICT, injury or death to CONTRACTOR’s or subcontractor's employees), as well as from all claims for property damage arising from operations under this Agreement, in amounts as set forth in the Agreement.

(b) CONTRACTOR shall require its subcontractors, if any, to take out and maintain similar public liability and property damage insurance in like amounts or insure the activities of its subcontractors in CONTRACTOR’s own policy.

(c) CONTRACTOR, during the progress of the work and until final acceptance of the work by DISTRICT upon completion of the entire Agreement, shall maintain Builder’s Risk/“All Risk,” course-of-construction insurance in an amount not less than as set forth in the Agreement. Coverage is to provide extended coverage and insurance against vandalism, malicious mischief, perils of fire, sprinkler leakage, civil authority, sonic boom, earthquake, collapse, flood, wind, lightning, smoke, riot, debris removal (including demolition), and reasonable compensation for ARCHITECT’s services and expenses required as a result of such insured loss upon the entire work which is the subject of the Project Documents, including completed work, work in progress to the full insurable amount thereof, and temporary field offices placed at the project site by the Contractor or District Consultants in conjunction with the Project. The risk of damage to the work due to the perils covered by the Builder’s Risk/“All Risk” Insurance, as well as any other hazards which might result in damage to the work, is that of CONTRACTOR and the surety, and no claims for such loss or damage shall be recognized by DISTRICT nor will such loss or damage excuse the complete and satisfactory performance of the Agreement by CONTRACTOR.

(d) CONTRACTOR shall submit proof of insurance and shall provide endorsements on the forms provided by the DISTRICT or on forms approved by the DISTRICT. Such insurance shall be issued by admitted surety insurers under the same conditions as required for bonds on the Project.

Article 18. Workers’ Compensation Insurance
(a) In accordance with the provisions of Section 3700 of the Labor Code, the CONTRACTOR and every subcontractor shall be required to secure the payment of compensation to its employees.

(b) The CONTRACTOR shall provide, during the life of the Agreement, workers' compensation insurance for all of its employees engaged in work under this Agreement, on or at the site of the Project, and, in case any of its work is sublet, the CONTRACTOR shall require the subcontractor similarly to provide workers' compensation insurance for all the latter's employees. Any class of employee or employees not covered by a subcontractor's insurance shall be covered by the CONTRACTOR's insurance. In case any class of employees engaged in work under this Agreement, on or at the site of the Project, is not protected under the workers' compensation statute, the 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. The CONTRACTOR shall file with the DISTRICT certificates of its insurance protecting workers and a thirty (30) day notice shall be provided to DISTRICT before the cancellation or reduction of any policy of CONTRACTOR or subcontractor. CONTRACTOR shall submit proof of insurance and shall provide endorsements on the forms provided by the DISTRICT or on forms approved by the DISTRICT. Such endorsements shall be submitted concurrently with the Project Documents.

ARTICLE 19. PROOF OF CARRIAGE OF INSURANCE

(a) CONTRACTOR shall not commence work nor shall it allow any subcontractor to commence work under this Agreement until all required insurance certificates and endorsements from admitted surety insurers have been obtained and delivered in duplicate to and approved by DISTRICT. Such insurance shall be issued by admitted surety insurers under the same conditions as required for bonds on the Project. CONTRACTOR shall provide proof of insurance on DISTRICT approved forms without revisions.

(b) 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 DISTRICT stating date of cancellation or reduction. Date of cancellation or reduction may not be less than thirty (30) days after date of mailing notice."

2. Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation and reduction notice will be sent, and length of notice period.

3. Statement that the DISTRICT is an additional insured under the policy described and that such insurance policy shall be primary to any insurance or self-insurance maintained by the DISTRICT.

(c) In case of CONTRACTOR's failure to provide insurance as required by the Agreement, the DISTRICT may, at DISTRICT's option, take out and maintain at the expense of the CONTRACTOR, such insurance in the name of CONTRACTOR, or subcontractor, as the DISTRICT may deem proper and may deduct the cost of
taking out and maintaining such insurance from any sums which are due or to become due to the CONTRACTOR under this Agreement.

**ARTICLE 20. DRAWINGS AND SPECIFICATIONS**

(a) Drawings and Specifications are intended to delineate and describe the Project and its component parts to such a degree as will enable skilled and competent contractors to intelligently bid upon the work, and to carry said work to a successful conclusion.

(b) Drawings and Specifications are intended to comply with all laws, ordinances, rules and regulations of constituted authorities having jurisdiction, and where referred to in the Project Documents, said laws, ordinances, rules and regulations shall be considered as a part of the Agreement within the limits specified. The CONTRACTOR shall bear all expenses of correcting work done contrary to said laws, ordinances, rules and regulations and if the CONTRACTOR performed same (1) without first consulting the ARCHITECT for further instructions regarding said work, or (2) disregarded the ARCHITECT'S instructions regarding said work.

(c) Questions regarding interpretation of drawings and specifications shall be clarified by the ARCHITECT. Before commencing any portion of the work, CONTRACTOR shall carefully examine all drawings and specifications and other information given to CONTRACTOR. CONTRACTOR shall immediately notify ARCHITECT and DISTRICT in writing of any perceived or alleged error, inconsistency, ambiguity, or lack of detail or explanation in the drawings and specifications. 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 under the Project 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 costs arising therefor including, without limitation, the cost of correction thereof. In the event ARCHITECT determines that CONTRACTOR's requests for clarification or interpretation are not justified or do not reflect adequate competent supervision or knowledge by the CONTRACTOR or his/her subcontractors, CONTRACTOR shall be required to pay ARCHITECT's reasonable and customary fees in processing and responding to such requests. Should the CONTRACTOR commence work or any part thereof without seeking clarification, CONTRACTOR waives any claim for extra work or damages as a result of any ambiguity, conflict or lack of information.

(d) 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. 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, and any necessary changes shall be adjusted as provided in the Article entitled "Changes and Extra Work;" provided, however, that the specification calling for the higher quality material or workmanship shall prevail without additional cost to DISTRICT.

(e) Materials or work described in words which so applied has a well-known technical or trade meaning shall be deemed to refer to such recognized standards.
(f) It is not the intention of the Agreement 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.

(g) The naming of any material and/or equipment shall mean furnishing and installing of same, including all incidental and accessory items thereto and/or labor necessary to achieve full and complete functioning of the material and/or equipment as per best practices of the trade(s) involved, unless specifically noted otherwise.

(h) ARCHITECT will furnish to CONTRACTOR one (1) complete set of blue-line prints for posting of changes. Additional blue-line prints shall be provided by ARCHITECT upon payment by CONTRACTOR. During the construction period, CONTRACTOR shall maintain the set of blue-line prints in a satisfactory record condition, and shall thoroughly and neatly post, as they occur, all additions, deletions, corrections and/or revisions in the actual construction of the Project. The record drawings must be posted monthly and be current prior to each submission of each certificate of payment.

**ARTICLE 21. OWNERSHIP OF DRAWINGS**

All plans, drawings, designs, specifications, and other incidental architectural and engineering work or materials and other Project Documents and copies thereof furnished by DISTRICT are DISTRICT’s property. They are not to be used in other work and are to be returned to DISTRICT on request at completion of work, and may be used by DISTRICT as it may require, without any additional costs to DISTRICT.

**ARTICLE 22. DETAIL DRAWINGS AND INSTRUCTIONS**

(a) In case of ambiguity, conflict, or lack of information, ARCHITECT shall furnish additional instructions by means of drawings or otherwise, necessary for proper execution of work. All such drawings and instructions shall be consistent with Project Documents, true developments thereof, and reasonably inferable therefrom. Such 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 therewith 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 details shall be considered as part of the Project Documents.

(d) Should any details be more elaborate, in the opinion of the CONTRACTOR, than scale drawings and specifications warrant, CONTRACTOR shall give written notice thereof to the ARCHITECT within five (5) days of the receipt of same. In case no notice is given to the ARCHITECT within five (5) days, it will be assumed the details are reasonable development of the scale drawings. In case notice is given, then it will be considered, and if found justified, the ARCHITECT will either modify the drawings or shall recommend to DISTRICT a change order for the extra work involved.
(e) All parts of the described and shown construction shall be of the best quality of their respective kinds and the CONTRACTOR is hereby advised to use all diligence to become fully involved as to the required construction and finish, and in no case to proceed with the different parts of the work without obtaining first from the ARCHITECT such directions and/or drawings as may be necessary for the proper performance of the work.

(f) If it is found at any time, before or after completion of the work, that the 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: (1) that all such improper work should be removed, remade and replaced, and all work disturbed by these changes be made good at the CONTRACTOR's expense; or (2) that the DISTRICT 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. ARCHITECT shall determine such difference in value. The DISTRICT, at its option, may pursue either recommendation made by the ARCHITECT.

ARTICLE 23. SHOP DRAWINGS

(a) CONTRACTOR shall check and verify all field measurements and shall submit to ARCHITECT, with sufficient advance time, six (6) copies, checked and approved by CONTRACTOR, of all shop or setting list drawings, schedules, and materials list required for the work of various trades. ARCHITECT shall review such drawings, schedules and materials list only for conformance with design concept of Project and compliance with information given in Project Documents, and return as approved or disapproved with guidance as to required corrections within fourteen (14) calendar days (and more than 14 calendar days for complex reviews). CONTRACTOR shall make any corrections required by ARCHITECT, file three (3) corrected copies with ARCHITECT, and furnish such other copies as may be needed for construction within fourteen (14) calendar days. ARCHITECT'S approval of such drawings, schedules, or materials list shall not relieve CONTRACTOR from responsibility for deviations unless CONTRACTOR has in writing called ARCHITECT'S attention to such deviations at time of submission and secured ARCHITECT'S written approval, nor shall it relieve CONTRACTOR from responsibility for errors in shop drawings or schedules.

(b) All submittals of shop drawings, catalog cuts, data sheets, schedules and material lists shall be complete and shall conform to contract drawings and specifications.

(c) The term "shop drawing" as used herein shall be understood to include, but not be limited to, detail design calculations, fabrication and installation drawings, lists, graphs and operating instructions.

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

(e) All shop drawing submittals shall be accompanied by an accurately completed transmittal form using the format bound herein. Any shop drawing submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for resubmittal. The 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 the CONTRACTOR.

(f) 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, the CONTRACTOR or Supplier may obtain from the ARCHITECT quantities of the shop drawing transmittal form at reproduction cost.

(g) CONTRACTOR's review and approval of shop drawings shall include the following stamp:

"The 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 Project 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"

(h) Within fourteen (14) calendar days after receipt of shop drawings, the ARCHITECT will return one or more prints of each drawing to CONTRACTOR with his or her comments noted thereon. The CONTRACTOR shall make a complete and acceptable submittal to the ARCHITECT by the second submission of drawings. The DISTRICT shall withhold funds due the CONTRACTOR to cover additional costs of the ARCHITECT'S review beyond the second submission and any other costs incurred by DISTRICT.

(i) If prints of the shop drawing are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision of said drawing will not be required. If prints of the drawing are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal resubmittal of said drawings will not be required. If prints of the drawing are returned to the CONTRACTOR marked "REVISE AND RESUBMIT," the CONTRACTOR shall revise said drawing and shall resubmit six (6) copies of the revised drawing to the ARCHITECT. If prints of the drawing are returned to the CONTRACTOR marked "REJECTED RESUBMIT," the CONTRACTOR shall resubmit six (6) new copies of the drawing to the ARCHITECT.

(j) Fabrication of an item shall not be commenced before the ARCHITECT has reviewed the pertinent shop drawings and returned copies to the CONTRACTOR marked with "NO EXCEPTIONS TAKEN," or "MAKE CORRECTIONS NOTED." Revisions indicated on shop drawings shall be considered as changes necessary to meet the requirements of the Project Documents and shall not be taken as the basis of claims for extra work. The review of such drawings by the ARCHITECT will be limited to checking for general agreement with the Project Documents, and shall in no way relieve the CONTRACTOR of responsibility for errors or omissions contained therein, nor shall such review operate to waive or modify any provision contained
in the Project Documents. Fabricating dimensions, quantities of material, applicable code requirements, and other contract requirements shall be the CONTRACTOR's responsibility.

(k) 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 Project Documents. The 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, and equipment and the required arrangements and clearances are involved.

(l) 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.

(m) Calculations of a structural nature must be approved by the Division of State Architect.

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

ARTICLE 24. LAYOUT AND FIELD ENGINEERING

All field engineering if required for laying out of work and establishing grades for earthwork operations shall be furnished by CONTRACTOR at its expense. Such work shall be done by a qualified civil engineer approved by the DISTRICT.

ARTICLE 25. SOILS INVESTIGATION REPORT

(a) When a soils investigation report has been obtained from test holes at the site, such report is available for the CONTRACTOR’S use for work under this Agreement. Such report shall not be part of the Agreement. Any information obtained from such report or any information given on the project documents as to surface and subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only, is not guaranteed and does not form a part of the Agreement. CONTRACTOR is required to make a visual examination of site and must make whatever test CONTRACTOR deems appropriate to determine surface and subsurface soil conditions. If, during the course of work under this Agreement, CONTRACTOR encounters subsurface or latent conditions which differ materially from those indicated in the soils investigation report, then CONTRACTOR shall notify the DISTRICT within five (5) working days of discovery of the condition.

WARNING: DISTRICT does not warrant the soils at the project site nor any information contained in any soils report. Soils investigation report is provided for CONTRACTOR’S information only. CONTRACTOR must
conduct an independent investigation of the project site and the soils conditions of the site. DISTRICT does not warrant the soils conditions of the site and CONTRACTOR is fully responsible to ascertain site conditions for the purposes of determining construction means and methods prior to commencing construction.

(b) CONTRACTOR agrees that no claim against DISTRICT will be made by CONTRACTOR for damages and hereby waives any rights to damages in the event that during progress of work CONTRACTOR encounters subsurface or latent conditions at the worksite materially different from those shown on project documents.

ARTICLE 26. TESTS AND INSPECTIONS

(a) Tests and inspections will comply with California Code of Regulations and with all other laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction over the Project.

(b) If the Agreement, DISTRICT’s instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, CONTRACTOR shall give notice in accordance with such authority of its readiness for observation or inspection at least two (2) working days prior to being tested or covered up. If inspection is by authority other than DISTRICT, CONTRACTOR shall inform the DISTRICT’s Inspector of the date fixed for such inspection. Required certificates of inspection shall be secured by CONTRACTOR. Observations by DISTRICT’s Inspector shall be promptly made, and where practicable, at source of supply. If any work should be covered up without approval or consent of DISTRICT’s Inspector, it must be uncovered for examination and satisfactorily reconstructed at CONTRACTOR’s expense in compliance with the Agreement. Costs of tests, inspections and any materials found to be not in compliance with the Agreement shall be paid for by CONTRACTOR. Other costs for test and inspection shall be paid by the DISTRICT.

ARTICLE 27. TRENCHES

(a) CONTRACTOR shall provide adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life and limb in trenches and open excavation, which conform to applicable safety standards.

(b) If this Agreement involves the excavation of any trench or trenches five (5) feet or more in depth, and the Project cost is in excess of $25,000, the CONTRACTOR shall, in advance of excavation, submit to the DISTRICT for acceptance or to whomever DISTRICT designates which may include a registered civil or structural engineer employed by the DISTRICT to whom authority to accept has been delegated, 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 such trench or trenches. If such plan varies from the Shoring System Standards established by the Construction Safety Orders of the Division of Industrial Safety, the plan shall be prepared by a registered civil or structural engineer employed by the CONTRACTOR, and all costs therefore shall be included in the price named in the Agreement for completion of the work as set forth in the Project Documents. In no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by CAL-OSHA and a CAL-OSHA permit for such plan delivered to the DISTRICT. Labor Code Section 6500 and 6705; Health and Safety Code Section 17922.5)
(c) If this Agreement involves the digging of trenches or excavations that extend deeper than four feet below the surface, the following shall apply pursuant to Public Contract Code section 7104:

(1) The CONTRACTOR shall promptly, and before the following conditions are disturbed, notify the DISTRICT, in writing, of any:

(i) Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

(ii) Subsurface or latent physical conditions at the site different from those indicated.

(iii) 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.

(2) The DISTRICT 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 shall issue a change order under the procedures described in the Project Documents.

(3) In the event a dispute arises between the DISTRICT and the CONTRACTOR, 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, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the Project Documents, but shall proceed with all the work to be performed under the Project Documents. 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.

ARTICLE 28. DOCUMENTS ON WORK

CONTRACTOR shall keep on the job site at all times one legible copy of all Project Documents, including addenda and change orders, and all approved drawings, plans, schedules and specifications. Said Documents shall be kept in good order and available to ARCHITECT, ARCHITECT’s representatives, and all authorities having jurisdiction. CONTRACTOR shall be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project.

ARTICLE 29. STATE AUDIT

Pursuant to and in accordance with the provisions of Government Code Section 8546.7, or any amendments thereto, all books, records and files of the DISTRICT, the CONTRACTOR, or any subcontractor connected with the performance of this Agreement involving the expenditure of public funds in excess of Ten Thousand Dollars ($10,000.00), including, but not limited to, the costs of administration of the Agreement, shall be subject to the examination and audit of the State Auditor at the request of the DISTRICT or as part of any audit of the DISTRICT for a period of three (3) years after final payment is made under this Agreement.
ARTICLE 30. SUBSTITUTIONS

(a) Prior to Bid Opening. Should the bidder wish to request prior to bid opening, any substitution for the materials, process, service or equipment specified, the bidder shall submit a written request at least ten (10) working days before the bid opening date and hour. If the substituted item is acceptable, the DISTRICT will approve it in an Addendum issued to all bidders of record. Requests received less than ten (10) working days prior to bid opening will not be considered. DISTRICT shall only consider substitution requests from the bidder submitting the bid for the project.

(b) After Bid Opening and Prior to Award of Contract. If the bidder clearly indicates in its bid that it is proposing to use an “equal” product, the brand name or trade name, if any, of a proposed substitute item shall be inserted in the spaces provided on the SUBSTITUTION REQUEST FORM. Any submittal provided after the aforementioned deadline will not be considered. If the bidder fails to indicate an “equal” product, its bid shall be considered as offering the material, process, service or equipment referred to by the brand name or trade name specified. It is expressly understood and agreed to by the bidder that the DISTRICT reserves the right to reject any such proposed substituted item. It is further expressly understood and agreed by bidder that in the event the DISTRICT rejects a proposed “equal” item, the bidder will then supply the material, process, service or equipment designated by brand name or trade name or a substitute therefore which meets with the approval of the DISTRICT.

The SUBSTITUTION REQUEST FORM:. Requests for substitutions of products, materials, or processes in place of a Specified Item must in writing on the District’s Substitution Request Form (“Request Form”) at the time of submitting bids to the District. The SUBSTITUTION REQUEST FORM must be accompanied by evidence as to whether the proposed substitution:

1. Is equal in quality/service/ability to the Specified Item;
2. Will entail no changes in detail, construction, and scheduling of related work;
3. Will be acceptable in consideration of the required design and artistic effect;
4. Will provide no cost disadvantage to the District;
5. Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
6. Will required no change of the construction schedule.

In completing the SUBSTITUTION REQUEST FORM, the bidder must state, with respect to each requested substitution, whether the bidder will agree to provide the Specified Item in the event that the District denies the bidder’s request for such requested substitution. In the event that the bidder has agreed in the Request Form to provide the Specified Item and the District denies the bidder’s requested substitution for a Specified Item, the bidder shall provide the Specified Item without any additional cost or charge to the District.

With respect to all proposed substitutions of “equal” items, the bidder shall submit all pertinent and appropriate data substantiating its request for substitutions within fifteen (15) days prior to the award of the contract. DISTRICT shall only consider substitution requests from the bidder submitting the bid for the Project. The DISTRICT is not responsible for locating or securing any information which is not included in such substantiating data. The burden of proof as to the quality or suitability of proposed substituted items shall be borne by the bidder. The DISTRICT shall be the sole judge as to the quality and suitability of proposed substituted items, and decisions of the DISTRICT shall be final and conclusive. Unless extended by the mutual agreement of the parties, the DISTRICT shall notify the successful bidder of the decision concerning the
proposed substitution of “equal” items prior to the award of the contract. Also such decisions by the DISTRICT shall be in writing, and no proposed substituted item shall be deemed approved unless the DISTRICT has so indicated in writing. These time limitations shall be complied with strictly, and in no case will an extension of time for completion be granted because of the bidder’s failure to request the substitution of an item at the times and in the manner set forth herein.

(c) Whenever in specifications any materials, process, service or equipment is indicated or specified by brand name, trade name, proprietary name or by name of manufacturer, such specification shall be deemed to be used for the purpose of facilitating description of material, process, service or equipment desired and shall be deemed to be followed by the words “or equal,” and CONTRACTOR may, unless otherwise stated, offer any material, process, service, or equipment which shall be substantially equal or better in every respect to that so indicated or specified subject to DISTRICT or ARCHITECT approval.

(d) If material, process, service, or equipment offered by CONTRACTOR is not, in opinion of ARCHITECT, or DISTRICT, substantially equal or better in every respect to that specified, then CONTRACTOR shall furnish the material, process, service, or equipment specified. Burden of proof as to equality of any material, process, service, or equipment shall rest with CONTRACTOR. Provision authorizing submission of “or equal” substantiating data shall not in any way authorize an extension of time for performance of this Agreement.

(e) In the event CONTRACTOR furnishes material, process, service or equipment other than what was specified by the DISTRICT and which has been accepted by the DISTRICT and which later is defective, then CONTRACTOR at its sole cost and expense shall furnish the DISTRICT specified material, process, service or equipment or fully replace with new the defective material process, service or equipment at DISTRICT’s discretion.

(f) In the event CONTRACTOR furnishes material, process service, or equipment more expensive than that specified, difference in cost of such material, process, service, or equipment so furnished shall be borne by CONTRACTOR. Any engineering, design fees, or approval agencies' fees required to make adjustments in material or work of all trades directly or indirectly affected by the approved substituted items shall be borne entirely by CONTRACTOR. Any difference in cost between an approved substitution which is lower in cost than the originally specified item shall be refunded or credited by CONTRACTOR to DISTRICT.

(g) Price, fitness and quality being equal with regard to supplies, the District may prefer supplies grown, manufactured, or produced in California and next prefer supplies partially manufactured grown, or produced in California provided the bids of said suppliers or the prices quoted by them do not exceed by more than 5% of 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 thereby. (Government Code section 4330-4334)

ARTICLE 31. SAMPLES

(a) CONTRACTOR shall furnish for approval, within thirty-five (35) calendar days following award of contract, all samples as required in specifications together with catalogs and supporting data required by ARCHITECT. This provision shall not authorize any extension of time for performance of the work. ARCHITECT shall review such samples, as to conformance with design concept of work and for compliance
with information given in Project Documents and approve or disapprove same within ten (10) working days from receipt of same.

(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) Samples shall, upon demand of ARCHITECT or DISTRICT, be submitted for tests or examinations and considered before incorporation of same 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 the CONTRACTOR.

ARTICLE 32. PROGRESS SCHEDULE

(a) Within five (5) calendar days after Board approval of contract, CONTRACTOR shall submit a preliminary schedule that describes the work sequence planned in the first 30 days of construction. Within 21 calendar days following Board approval of contract, CONTRACTOR shall prepare and submit for DISTRICT’s acceptance the Initial Construction Schedule. The schedule shall indicate the beginning and completion dates of all phases of construction and shall use the "critical path method" (commonly called CPM) or equivalent scheduling methodology for the value reporting, planning and scheduling, of all work required under the Project Documents. The schedule will separately identify those milestones or events that must be completed before other portions of the work can be accomplished.

(b) The scheduling is necessary for the DISTRICT’s adequate monitoring of the progress of the work and shall be prepared in accordance with the time frame described in Article 4 of the Agreement. The DISTRICT may reject such a schedule and require modification to it if, in the opinion of the ARCHITECT or DISTRICT, adherence to the progress schedule will cause the work not to be completed in accordance with the Agreement. CONTRACTOR shall adhere to any such modifications required by the DISTRICT.

(c) CONTRACTOR will exchange scheduling information with subcontractors and suppliers. CONTRACTOR will order work, equipment and materials with sufficient lead time to avoid interruption of the work.

(d) The CONTRACTOR shall submit to DISTRICT a monthly schedule to reflect the actual sequence of the work which shall be totally separate and apart from the original progress schedule.

(e) The CONTRACTOR shall also, if requested by the ARCHITECT or DISTRICT, provide revised schedules within ten (10) calendar days if, at any time, the ARCHITECT or DISTRICT, consider the completion date to be in jeopardy. The revised schedule shall be designed to show how the CONTRACTOR intends to accomplish the work to meet the original completion date. The form and method employed by the CONTRACTOR shall be the same as for the original progress schedule. The CONTRACTOR shall modify any portions of the schedule that become infeasible because of "activities behind schedule" or for any other valid reason. CONTRACTOR will provide documents and justification for any schedule changes. An activity that cannot be completed by its original completion date shall be deemed to be behind schedule.
(f) CONTRACTOR shall submit a revised schedule within ten (10) consecutive calendar days of CONTRACTOR’s request for any extension of time. Failure to submit such schedule will result in CONTRACTOR waiving his/her right to obtain any extension of time.

(g) IT IS AGREED THAT THE DISTRICT OWNS THE “FLOAT” ON THIS PROJECT. IF CONTRACTOR SUBMITS A REVISED SCHEDULE SHOWING AN EARLIER COMPLETION DATE FOR THE PROJECT, DISTRICT’s ACCEPTANCE OF THIS REVISED SCHEDULE SHALL NOT ENTITLE CONTRACTOR TO ANY DELAY CLAIM OR DISRUPTION DAMAGES OR ANY OTHER DAMAGES DUE TO ANY SUCH REVISED SCHEDULE. NOTHING PROVIDED HEREIN SHALL BE CONSTRUED AS A DIRECT, INDIRECT OR IMPLICIT ACCELERATION ORDER TO THE CONTRACTOR.

(h) CONTRACTOR agrees that failure to timely submit the progress schedule, the monthly schedule or any revised progress schedule requested by the ARCHITECT or the DISTRICT may result in delay in payment to CONTRACTOR.

(i) In addition to the requirement to update the baseline schedule, CONTRACTOR is responsible to provide a four week rolling schedule at each progress meeting. This Schedule will include activities that are 1 week behind the Data Date and 3 weeks ahead of the Data Date. The Data Date shall be the date of the progress meeting. Schedule shall include information for all trades on-site. Schedule will identify any work that is proposed outside the regular working hours.

**ARTICLE 33. TIME ALLOWANCES**

(a) DISTRICT will serve a Notice to Proceed upon Contractor by hand delivery, facsimile, email or delivery to Contractor at legal address.

(b) Start date for Contract Times shall be on the date indicated in the Notice to Proceed. If no date is indicated, then the start date for contract time shall be the 5th calendar day from date that Contractor receives DISTRICT’s written Notice to Proceed, unless the Notice to Proceed is served by mail only, then the Start Date under the Contract shall be the tenth (10th) calendar day following the date of mailing. The Contractor shall commence work on such day, and shall prosecute the Work diligently to completion thereafter. No work shall commence before contract bonds and insurance certificates have been filed with the DISTRICT and the contract has been signed by the DISTRICT.

(c) CHANGE OF CONTRACT TIMES

(1) The contract times may only be changed by change order or written amendment and time is of this essence in this Agreement.

(2) The Contract Times will be adjusted in an amount equal to the time lost as shown on a critical path schedule due to the following:

(i) Changes in the Work ordered by DISTRICT;
(ii) Acts or neglect by DISTRICT’s consultants, acts or neglect of utility districts, acts or neglect of other Contractors performing other Work, provided Contractor has fully and completely performed its responsibilities under the Contract Documents, including but not limited to, its cooperation and coordination responsibilities required by the Contract Documents;

Fires, floods, abnormal weather conditions, earthquakes, civil disturbances, or acts of God, provided damage resulting from same is not the result of Contractor's failure to properly protect the Work as required by the Contract Documents. Notwithstanding the foregoing, the contract times shall not be extended unless Contractor has actually been prevented from completing any part of the Work within the contract time due to delay which is (i) beyond the control of Contractor and (ii) due to reasons for which Contractor is not responsible and (iii) a claim for delay is made as provided for herein. Delays attributable to and within the control of a Subcontractor, or its subcontractors, or supplier shall be deemed to be delays within the control of Contractor.

Contractor shall have no right to an adjustment in the time of completion due to weather conditions which are normal for the locality of the site. The time period for completion of the project has been determined with consideration given to the average climatic range prevailing in the locality of the site.

(3) Where Contractor is prevented from completing any part of the Work within the contract due to delay beyond the control of both DISTRICT and Contractor, an extension of contract times in an amount equal to the time loss due to such delay shall be the Contractor's sole and exclusive remedy for such delay. DISTRICT shall not be liable to Contractor, any Subcontractor, any supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of Contractor, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility districts.

(4) Delays due to adverse weather conditions will not be allowed for weather conditions which do not directly impact the performance of the critical path. Whenever the Contractor has undertaken an exterior critical path activity which is directly impacted by adverse weather conditions, the Contractor shall immediately notify the DISTRICT of the potential delay to such activity. The DISTRICT shall inspect the site, meet with the Contractor and confirm that the exterior critical path activity is impacted and grant an extension of the Contract Times sufficient to allow the Contractor to perform the impacted activity.

(5) If delays acceptable for evaluation occur concurrently, the maximum extension of the Contract time shall be the number of days from the commencement of the first delay to the cessation of the delay which ends last.

(6) Delay in completion of the Work beyond the expiration of the contract time resulting from causes other than those listed as acceptable for evaluation are considered inexcusable delays and shall not entitle the Contractor to an extension of the contract time or an adjustment of the Contract amount.
If an inexcusable delay occurs concurrently with acceptable delays for evaluation, the maximum extension of the Contract Time shall be the number of days, if any, by which the duration of a delay exceeds the inexcusable delay. The duration of concurrence is non-compensable.

(d) NOTICE OF DELAY

(1) Notice shall constitute application for extension of time only if notice requests extension and sets forth the impact of the delay on the critical path and Contractor's estimate of additional time required together with full recital of causes of unavoidable delays relied upon.

(2) After receipt of a request for a time extension, with verifiable documents and justifications included, DISTRICT will make decision thereon, and will advise Contractor in writing.

(3) No time extensions shall be considered without related documents and justifications necessary for DISTRICT to make determination.

(4) No time extensions shall be granted for delays for which Contractor fails to give timely notice and Contractor hereby waives any and all damages for delay for which timely notice is not given.

(5) Any request for extension of time shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant is entitled as a result of the occurrence of said event. All claims and adjustments in the contract times shall be determined by DISTRICT. No claim for an adjustment in the contract times will be valid and such claim will be waived if not submitted in accordance with the requirements of this paragraph.

(6) The Contractor's failure to perform in accordance with the construction schedule shall not be excused because the Contractor has submitted time extension requests, unless and until such requests are approved by DISTRICT.

(e) NO DAMAGE FOR CONTRACTOR CAUSED DELAY

Contractor shall not be entitled to any compensation, including but not limited to extended field or home office overhead, field supervision, costs of capital, interest, escalation charges, acceleration costs or other impacts for any delays caused in whole or in part by Contractor's failure to perform its obligations under this Contract, or during periods of delay concurrently caused by Contractor and either DISTRICT or others. Contractor may be compensated for delays caused directly and solely by DISTRICT except that Contractor shall not be entitled to damages for delay to the Work caused by the following reasons:

(1) DISTRICT's right to sequence Work in manner which would avoid disruption to the DISTRICT's tenants and their contractors or other prime contractors and their respective subcontractors, exercised as a result of Contractor's failure to perform its cooperation and coordination responsibilities required by this Contract;
(2) DISTRICT’s enforcement of government act or regulation, or the provisions of the Contract Documents; and

(3) Extensive requests for clarifications to construction documents or modifications to contract, provided such clarifications or modifications are processed by DISTRICT or its consultants in a reasonable time commensurate with provisions of Contract requirements.

(f) EXTENSION OF TIME DOES NOT WAIVE DISTRICT'S RIGHTS

Granting of time extension for any reason shall in no way operate as waiver on part of DISTRICT, of right to collect liquidated damages for other delays or of right to collect other damages or other rights to which DISTRICT is entitled.

**ARTICLE 34. MATERIALS AND WORK**

(a) Except as otherwise specifically stated in this Agreement, CONTRACTOR shall provide and pay for all materials, supplies, tools, equipment, labor transportation, superintendence, temporary constructions of every nature, and all other services and facilities of every nature whatsoever necessary to execute and complete the Project within specified time.

(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 such times as to insure uninterrupted progress of work and shall be stored properly and protected as required. DISTRICT has no obligation to pay for any prefabricated material stored offsite until delivered and installed to the jobsite and inspected and approved by the inspector of record.

(d) CONTRACTOR shall, after issuance of the Notice to Proceed by DISTRICT, place orders for materials and/or equipment as specified so that delivery of same may be made without delays to the work. CONTRACTOR shall, upon demand from the ARCHITECT, furnish to the ARCHITECT documentary evidence showing that orders have been placed.

(e) DISTRICT reserves the right, for any neglect in not complying with the above instructions, to place orders for such materials and/or equipment as it may deem advisable in order that the work may be completed at the date specified in the Agreement, and all expenses incidental to the procuring of said materials and/or equipment shall be paid for by the CONTRACTOR.

(f) No materials, supplies, or equipment for work under this Agreement shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part
CONTRACTOR warrants good title to all material, supplies, and equipment installed or incorporated in work and agrees upon completion of all work to deliver premises, together with all improvements and appurtenances constructed or placed thereon by it, to DISTRICT free from any claims, liens, or charges. CONTRACTOR further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any work covered by this Agreement shall have any right to lien upon premises or any improvement or appurtenance thereon, except that CONTRACTOR may install metering devices or other equipment of utility companies or of political subdivisions, title to which is commonly retained by utility company or political subdivision. In the event of installation of any such metering device or equipment, CONTRACTOR shall advise DISTRICT as to owner thereof.

(g) Nothing contained in this Article 33, however, shall defeat or impair the rights of persons furnishing material or labor under any bond given by CONTRACTOR for their protection or any rights under any law permitting such persons to look to funds due CONTRACTOR in hand of DISTRICT, and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials or labor when no formal contract is entered into for such materials or labor.

(h) The title to new materials and/or equipment and attendant liability for its protection and safety, shall remain in the CONTRACTOR until incorporated in the work and accepted by the DISTRICT; no part of said materials and/or equipment shall be removed from its place of onsite/offsite storage except for immediate installation in the work; and CONTRACTOR shall keep an accurate inventory of all said materials and/or equipment in a manner satisfactory to the DISTRICT or its authorized representative.

ARTICLE 35. INTEGRATION OF WORK

(a) CONTRACTOR shall do all cutting, fitting, patching, and preparation of work as required to make its several parts come together properly, and fit it to receive or be received by work of other contractors or existing conditions showing upon, or reasonably implied by, the drawings and specifications, and shall follow all directions given by the Architect.

(b) All costs 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 without the written consent of the ARCHITECT. 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.

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

(e) CONTRACTOR is aware that this Project may be split into several phases. If the Project is split into phases then 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 damages, including delay damages, shall be against the contractor who caused such damage and not the DISTRICT. 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 36. OBTAINING OF PERMITS, LICENSES AND EASEMENTS

(a) Permits, licenses, and certificates necessary for prosecution of work, shall be secured and paid for by CONTRACTOR, unless otherwise specified. All such permits, licenses, and certificates shall be delivered to the ARCHITECT before demand is made for the certificate of final payment. CONTRACTOR shall, and shall require subcontractors to, maintain contractors’ licenses in effect as required by law.

(b) Easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by DISTRICT, unless otherwise specified.

(c) Permits and charges for installation, and inspection thereof, of utility services by serving utilities shall be secured and paid for by DISTRICT.

ARTICLE 37. SURVEYS

Surveys to determine location of property lines and corners will be supplied by DISTRICT. Surveys to determine locations of construction, grading, and site work, shall be provided by CONTRACTOR.

ARTICLE 38. EXISTING UTILITY LINES; REMOVAL, RESTORATION

(a) Pursuant to Government Code Section 4215, the DISTRICT assumes the responsibility for removal, relocation, and protection of utilities located on the construction site at the time of commencement of construction under this Agreement with respect to any such utility facilities which are not identified in the plans and specifications. The CONTRACTOR shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of the DISTRICT to provide for removal or relocation of such utility facilities. If the CONTRACTOR, while performing work under this Agreement, discovers utility facilities not identified by the DISTRICT in the plans or specifications, CONTRACTOR shall immediately notify the DISTRICT and the utility in writing. CONTRACTOR shall be compensated according to the provisions governing changes in the work.

(b) This Article 37 shall not be construed to preclude assessment against the CONTRACTOR for any other delays in completion of the work. Nothing in this Article shall be deemed to require the DISTRICT to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the construction site can be inferred from the presence of other visible facilities, such as buildings, meter junction boxes, on or adjacent to the site of the construction.

(c) 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 39. WORK TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS
(a) CONTRACTOR shall give all notices and comply with all laws, ordinances, rules, and regulations applicable to the work as indicated and specified.

(b) If CONTRACTOR observes that drawings or specifications are at variance therewith, CONTRACTOR shall promptly notify ARCHITECT in writing and any changes deemed necessary by the ARCHITECT shall be adjusted as provided for changes in work. If CONTRACTOR performs any work which it knew, or through exercise of reasonable care should have known, to be contrary to such laws, ordinances, rules or regulations, and without such notice to ARCHITECT, CONTRACTOR shall bear all costs arising therefrom. Where plans, drawings or specifications state that materials, processes, or procedures must be approved by the Division of State Architect, State Fire Marshall, or other body or agency, CONTRACTOR shall be responsible for satisfying requirements of such bodies or agencies.

ARTICLE 40. ACCESS TO WORK

DISTRICT and its representatives shall at all times have access to work wherever it is in preparation or progress. CONTRACTOR shall provide safe and proper facilities for such access so that DISTRICT’s representatives may perform their functions.

ARTICLE 41. PAYMENTS BY CONTRACTOR

CONTRACTOR shall pay:

1. For all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered;

2. For all materials, tools, and other expendable equipment to the extent of ninety percent (90%) of cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at site of Project and balance of cost thereof not later than the 30th day following completion of that part of work in or on which such materials, tools, and equipment are incorporated or used; and

3. To each of its subcontractors, not later than the 5th day following each payment to CONTRACTOR the respective amounts allowed CONTRACTOR on account of work performed by respective subcontractor to the extent of such subcontractor’s interest therein.

4. Within seven (7) days from the time that all or any portion of the retentions are received by CONTRACTOR from DISTRICT, to each of its subcontractors from whom retention has been withheld, each subcontractor’s share of the retention received. However, if a retention payment received by CONTRACTOR is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor, if the payment is consistent with the terms of the subcontract. CONTRACTOR may withhold from a subcontractor its portion of the retentions if a bona fide dispute exists between the subcontractor and the CONTRACTOR. The amount withheld from the retention shall not exceed one hundred fifty percent (150%) of the estimated value of the disputed amount.
ARTICLE 42. INSPECTOR'S FIELD OFFICE

Not Applicable

ARTICLE 43. UTILITIES

(a) All utilities, including but not limited to electricity, water, gas, and telephone used on 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 site where utility is necessary to carry on the work. When it is necessary to interrupt any existing utility service to make connections, a minimum of forty-eight (48) hours advance notice shall be given to the DISTRICT and ARCHITECT. Interruptions in utility services shall be of the shortest possible duration for the work at hand and shall be approved by the DISTRICT and the ARCHITECT. In the event any utility service is interrupted without the required forty-eight (48) hours notice, then CONTRACTOR shall be liable for all damage suffered by DISTRICT due to the interruption. Upon completion of work, CONTRACTOR shall remove all temporary distribution systems.

(b) CONTRACTOR may, with written permission of DISTRICT, use DISTRICT’s existing utilities by making prearranged payments to DISTRICT for utilities used by CONTRACTOR for the Project.

ARTICLE 44. SANITARY FACILITIES

The CONTRACTOR shall provide sanitary temporary toilet and wash facilities in no fewer numbers than required by law and such additional facilities as may be directed by the Inspector for the use of all workers. The toilet facilities shall be maintained in a sanitary condition at all times and shall be left at the site until removal is directed by the Inspector. Use of toilet and wash facilities in the work under construction shall not be permitted.

ARTICLE 45. CLEANING UP

CONTRACTOR at all times shall keep 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 same. Upon completion of work, CONTRACTOR shall clean interior and exterior of 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 site. If CONTRACTOR fails to clean up, the DISTRICT shall do so and the cost thereof shall be charged to the CONTRACTOR and deducted from any progress payment due.

ARTICLE 46. PATENTS, ROYALTIES, AND INDEMNITIES

The CONTRACTOR shall hold and save the DISTRICT and its governing board, officers, agents, and employees harmless 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 this
Article 47. Guarantee

(a) CONTRACTOR warrants that the work (which includes any equipment furnished by CONTRACTOR as part of the materials) shall: (a) be free from defects in workmanship and material; (b) be free from defects in any design performed by CONTRACTOR; (c) be 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 (d) be suitable for the use stated in the specifications.

(b) The warranty period for discovery of defective work shall commence on the date stamped on the Notice of Completion verifying County recordation and 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) District 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 the DISTRICT and with due diligence and dispatch as required to make the work ready for use by DISTRICT, 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 DISTRICT’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 and replacement of work shall be performed at a time and in such a manner so as to minimize the disruption to DISTRICT’s use of the work.

(d) In the event of failure of CONTRACTOR or Surety to commence and pursue with diligence said repairs or replacements within ten (10) calendar days after being notified in writing, DISTRICT is hereby authorized to proceed to have defects repaired or replaced and made good at expense of CONTRACTOR and Surety who hereby agree to pay costs and charges therefore immediately on demand.

(e) If, in the opinion of the DISTRICT, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the DISTRICT or to prevent interruption of operations of the DISTRICT, the DISTRICT will attempt to give the written notice required by this Article. If the CONTRACTOR or Surety cannot be contacted or neither complies with the DISTRICT’s requirements for correction within a reasonable time as determined by the DISTRICT, the DISTRICT may, notwithstanding the provisions of this Article, proceed to make such correction or provide such attention and the costs of such correction or attention shall be charged against the CONTRACTOR and Surety. Such action by the DISTRICT will not relieve the CONTRACTOR and Surety of the guarantees provided in this Article or elsewhere in the Project Documents.

(f) This Article does not in any way limit the guarantees on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. CONTRACTOR
(g) All guarantees required under this Article shall be in writing on the Guarantee form included in the Project Documents.

(h) CONTRACTOR shall provide to DISTRICT instruction manuals for all items which require same.

(i) Nothing herein shall limit any other rights or remedies available to DISTRICT.

(j) The DISTRICT may collect its reasonable costs and attorneys' fees in any action to enforce this Article.

ARTICLE 48. DUTY TO PROVIDE FIT WORKERS

(a) CONTRACTOR and subcontractors shall at all times enforce strict discipline and good order among their employees and shall not employ on work any unfit person or anyone not skilled in work assigned to such person. It shall be the responsibility of CONTRACTOR to ensure compliance with this Article.

(b) Any person in the employ of the CONTRACTOR or subcontractors whom DISTRICT or ARCHITECT may deem 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 DISTRICT.

ARTICLE 49. WAGE RATES, TRAVEL AND SUBSISTENCE

(a) Pursuant to the provisions of Article 2 (commencing at Section 1770), Chapter 1, Part 7, Division 2 of the Labor Code, the governing board of DISTRICT has obtained the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification or type of worker needed for this Project from the Director of the Department of Industrial Relations ("Director."). These rates are on file with the Clerk of the DISTRICT’s governing board and copies will be made available to any interested party on request. CONTRACTOR shall post a copy of such wage rates at the work site. Labor Code Section 1773.2. The rates are available on the Internet at www.dir.ca.gov “Statistics & Research.”

(b) Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half times the above specified rate of per diem wages, unless otherwise specified. Holidays shall be defined in the Collective Bargaining Agreement applicable to each particular craft, classification or type of worker employed.

(c) CONTRACTOR shall pay and shall cause to be paid each worker engaged in work on the Project not less than the general prevailing rate of per diem wages determined by the Director, regardless of any contractual relationship which may be alleged to exist between the CONTRACTOR or any subcontractor and such workers.
(d) CONTRACTOR shall pay and shall cause to be paid to each worker needed to execute the work on the Project travel and subsistence payments, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed with the Department of Industrial Relations in accordance with Labor Code Section 1773.8.

(e) If during the period this bid is required to remain open, the Director of Industrial Relations determines that there has been a change in any prevailing rate of per diem wages in the locality in which this public work is to be performed, such change shall not alter the wage rates in the Notice Calling for Bids or the contract subsequently awarded.

(f) Pursuant to Labor Code Section 1775, CONTRACTOR shall as a penalty to the DISTRICT, forfeit fifty dollars ($50) for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of per diem wages, determined by the Director, for such craft or classification in which such worker is employed for any public work done under the Agreement by CONTRACTOR or by any subcontractor under it. The amount of the penalty shall be determined by the Labor Commission and shall be based on consideration of the CONTRACTOR's mistake, inadvertence or neglect in failing to pay the correct prevailing rate of per diem wage, or the previous record of the CONTRACTOR in meeting his or her prevailing rate of per diem wage obligations, or the CONTRACTOR's willful failure to pay the correct prevailing rate of per diem wages. A mistake, inadvertence or neglect in failing to pay the correct prevailing rate of per diem wage is not excusable if the CONTRACTOR had knowledge of his or her obligations under this part. The difference between such prevailing rate of per diem wage and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing rate of per diem wage shall be paid to each worker by the CONTRACTOR.

(g) Any worker employed to perform work on the Project, which work is not covered by any craft or classification listed in the general prevailing rate of per diem wages determined by the Director shall be paid not less than the minimum rate of wages specified therein for the craft or classification which most nearly corresponds to work to be performed by them, and such minimum wage rate shall be retroactive to time of initial employment of such person in such craft or classification.

(h) Pursuant to Labor Code Section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, and subsistence pay as provided for in Labor Code Section 1773.8.

(i) CONTRACTOR shall post at appropriate conspicuous points on the site of the Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned.

**ARTICLE 50. HOURS OF WORK**

(a) As provided in Article 3, (commencing at Section 1810), Chapter 1, Part 7, Division 2 of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the CONTRACTOR or by any subcontractor on any subcontract under this Agreement upon the work or upon any part of the work contemplated by this Agreement shall be limited and restricted by the Agreement to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, work performed by employees of CONTRACTOR in
excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.

(b) The CONTRACTOR shall keep and shall cause each subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by CONTRACTOR in connection with the work or any part of the work contemplated by this Agreement. The record shall be kept open at all reasonable hours to the inspection of the DISTRICT and to the Division of Labor Standards Enforcement, Department of Industrial Relations.

(c) Pursuant to Labor Code Section 1813, the CONTRACTOR shall pay to the DISTRICT a penalty of Twenty-Five Dollars ($25) for each worker employed in the execution of this Contract by the CONTRACTOR or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one 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.

(d) Any work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to DISTRICT.

ARTICLE 51. PAYROLL RECORDS

(a) Pursuant to the provisions of Labor Code Section 1776, the CONTRACTOR shall keep and shall cause each subcontractor performing any portion of the work under this Agreement 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.

(b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the CONTRACTOR 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 payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the DISTRICT, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection upon request by the public or copies thereof made; provided, however, that a request by the public shall be made through either the District, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the CONTRACTOR, subcontractors, and the entity through which the request
(4) The form of certification shall be as follows:

I, ______________ (Name-print), the undersigned, am ______________ (position in business) with the authority to act for and on behalf of

___________________________________________ (Name of business and/or CONTRACTOR),
certify under penalty of perjury that the records or copies thereof 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: ______________________________________________

(c) Contractor shall file a certified copy of the payroll records enumerated in subdivision (a) with the entity that requested the records within ten (10) days after receipt of a written request. In the event that the CONTRACTOR fails to comply within the 10-day period, the CONTRACTOR shall, as a penalty to the DISTRICT, forfeit Twenty-Five Dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

(d) Any copy of payroll records made available for inspection as copies and furnished upon request to the public by the DISTRICT, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of the CONTRACTOR shall not be marked or obliterated.

(e) The CONTRACTOR shall inform the DISTRICT of the location of the payroll records enumerated under subdivision (a), including the street address, city and county, and shall, within five (5) working days, provide a written notice of a change of location and address.

(f) It shall be the responsibility of the CONTRACTOR to ensure compliance with the provisions of this Article 50 and the provisions of Labor Code Section 1776.

ARTICLE 52. APPRENTICES

(a) The CONTRACTOR acknowledges and agrees that, if this Agreement involves a dollar amount greater than or a number of working days greater than that specified in Labor Code Section 1777.5, this Agreement is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of the
CONTRACTOR to ensure compliance with this Article 51 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 such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he or she is employed, and shall be employed only at the work of the craft or trade to which he or she is registered.

(d) Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards and 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 apprenticeship shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he or she is training.

(e) Pursuant to Labor Code Section 1777.5, the CONTRACTOR and any subcontractors employing workers in any apprenticeship craft or trade in performing any work under this Agreement shall employ apprentices in at least the ratio set forth in Section 1777.5 and apply to the applicable joint apprenticeship committee for a certificate approving the CONTRACTOR or subcontractor under the applicable apprenticeship standards for the employment and training of apprentices.

(f) Every contractor and subcontractor shall submit contract award information to the applicable joint apprenticeship committee which shall include an estimate of journeyman hours to be performed under the Agreement, the number of apprentices to be employed and the approximate dates the apprentices will be employed.

(g) If the CONTRACTOR or subcontractor willfully fails to comply with Labor Code Section 1777.5, then, upon a determination of noncompliance by the Chief of the Division of Apprenticeship Standards, the CONTRACTOR or subcontractor shall be subject to the penalties imposed under Labor Code Section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council.

(h) The CONTRACTOR and all subcontractors shall comply with Labor Code Section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

(i) CONTRACTOR shall become fully acquainted with the law regarding apprentices prior to commencement of the work. Special attention is directed to Sections 1777.5, 1777.6, and 1777.7 of the Labor Code, 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, 8th Floor, San Francisco, California 94102, (415) 703-4920.
The CONTRACTOR shall maintain emergency first aid treatment for CONTRACTOR's workers on the Project which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C.A., Sec. 651, et seq.).

ARTICLE 54. PROTECTION OF PERSONS AND PROPERTY

(a) The CONTRACTOR shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Agreement and shall take all necessary measures and be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance by the DISTRICT. CONTRACTOR shall provide such heat, covering, and enclosures as are necessary to protect all work, materials, equipment, appliances, and tools against damage by weather conditions. All work shall be solely at the CONTRACTOR’s risk with the exception of damage to the work caused by "acts of God" as defined in Public Contract Code Section 7105.

(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 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 DISTRICT or 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. Name and position of person so designated shall be reported in writing to DISTRICT by CONTRACTOR. CONTRACTOR shall correct any violations of safety laws, standards, orders, rules, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, such violation shall be corrected immediately by the CONTRACTOR at CONTRACTOR's expense.

(c) In an emergency affecting safety of person or of work or of adjoining property, CONTRACTOR, without special instruction or authorization from ARCHITECT or DISTRICT, is hereby permitted to act, at its discretion, to prevent such threatened loss or injury; and CONTRACTOR shall so act if so authorized or instructed by Architect or DISTRICT. Any compensation claimed by CONTRACTOR on account of emergency work shall be determined by written agreement with the DISTRICT.

(d) CONTRACTOR shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations.

(e) CONTRACTOR shall (unless waived by the DISTRICT in writing):

(1) When performing new construction on existing sites, become informed and take into specific account the maturity of the students on the site; perform work which may interfere with school routine before or after school hours; enclose working area with a substantial barricade; not allow any unauthorized individuals on the site; require all workers on the Project to be conspicuously identified
either by a firm logo on their clothing or prominent identification badge and arrange work to cause a minimum amount of inconvenience and danger to students and faculty in their regular school activities.

(2) Provide substantial barricades around any shrubs or trees indicated to be preserved.

(3) Deliver materials to building area over route designated by ARCHITECT.

(4) When directed by DISTRICT, take preventive measures to eliminate objectionable dust.

(5) Enforce all instructions of DISTRICT and ARCHITECT regarding signs, advertising, fires, and smoking and require that all workers comply with all regulations while on construction site.

(6) Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by an approved civil engineer at no cost to the DISTRICT.

**ARTICLE 55. NON-DISCRIMINATION**

In the performance of the terms of this Agreement, CONTRACTOR agrees that it will not engage in nor permit such subcontractor as 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, age or sex of such persons.

**ARTICLE 56. SCHEDULE OF VALUES AND PERIODICAL ESTIMATES**

(a) CONTRACTOR shall furnish on form(s) approved by DISTRICT:

(1) Within ten (10) calendar days of award of contract a detailed schedule of values giving complete breakdown of contract price for each component of the 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 purpose of making partial payments thereon. Change order work shall be clearly identified on a separate schedule of values.

(3) Within ten (10) calendar days of request of DISTRICT, a schedule of estimated monthly payments which shall be due CONTRACTOR under the Agreement.

(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.
ARTICLE 57. CONTRACTOR CLAIMS

If the CONTRACTOR shall claim compensation for any damage sustained by reason of the acts of the DISTRICT or its agents, CONTRACTOR shall, within five (5) calendar days after sustaining of such damage, make to the ARCHITECT a written statement of the damage sustained. On or before the 15th day of the month succeeding that in which such damage shall have been sustained the CONTRACTOR shall file with the DISTRICT an itemized statement of the details and amount of such damage, and unless such statement shall be made as thus required, CONTRACTOR's claims for compensation shall be forfeited and invalidated and it shall not be entitled to consideration for payment on account of any such damage.

ARTICLE 58. DISPUTES - ARCHITECT'S DECISIONS

(a) The ARCHITECT shall, within a reasonable time, make decisions on all matters relating to the CONTRACTOR’s execution and progress of the work. The decisions of the ARCHITECT shall not be binding, but shall be advisory only on the CONTRACTOR for the purpose of CONTRACTOR’s obligation to proceed with the work.

(b) Except for tort claims, all claims by the CONTRACTOR for a time extension, payment of money or damages arising from work done by, or on behalf of, the CONTRACTOR pursuant to the Agreement and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or as to the amount of payment which is disputed by the DISTRICT of Three Hundred Seventy Five Thousand Dollars ($375,000) or less shall be subject to the settlement procedures set forth in Public Contract Code Section 20104, et seq. which provisions are incorporated herein by reference.

(c) In the event of a dispute between the parties as to performance of the work, the interpretation of this Agreement or payment or nonpayment for work performed or not performed, the parties shall attempt to resolve the dispute. Pending resolution of the dispute, CONTRACTOR agrees to continue the work diligently to completion. If the dispute is not resolved, CONTRACTOR agrees it will neither rescind the Agreement nor stop the progress of the work, but CONTRACTOR's sole remedy shall be to submit such controversy to determination by a court of the State of California, in Orange County, having competent jurisdiction of the dispute, after the Project has been completed, and not before.

ARTICLE 59. PAYMENTS

(a) Unless otherwise specified in writing, each month within thirty (30) days after receipt by the DISTRICT of the monthly progress schedule and an undisputed, properly submitted payment request from CONTRACTOR which has been certified for payment by the Architect, there shall be paid to CONTRACTOR a sum equal to ninety percent (90%) of value of work performed and of materials delivered to the jobsite and inspected and approved by the inspector of record and subject to or under the control of the DISTRICT and unused up to the last day of the previous month, less aggregate previous payments. Public Contract Code Section 20104.50 Monthly payments shall be made only on the basis of monthly estimates which shall be prepared by CONTRACTOR on a form approved by DISTRICT and filed before the fifth day of the month during which payment is to be made. Work completed as estimated shall be an estimate only and no inaccuracy or error in said estimate shall operate to release CONTRACTOR or Surety from any damages arising from such work or from enforcing each and every provision of this Agreement, and DISTRICT shall have the right subsequently to correct any error made in any estimate for payment. CONTRACTOR SHALL NOT BE
ENTITLED TO HAVE ANY PAYMENT ESTIMATES PROCESSED OR BE ENTITLED TO HAVE ANY PAYMENT FOR WORK PERFORMED SO LONG AS ANY LAWFUL OR PROPER DIRECTION CONCERNING WORK, OR ANY PORTION THEREOF, GIVEN BY THE DISTRICT OR ARCHITECT SHALL REMAIN UNCOMPLIED WITH BY THE CONTRACTOR. CONTRACTOR AGREES TO THE TEN PERCENT (10%) RETENTION ON ALL PROGRESS PAYMENTS. Public Contract Code Section 9203.

(b) DISTRICT has discretion to require from the CONTRACTOR any of the following information with the application for payment: (i) certified payroll covering the period of the prior application for payment; (ii) unconditional waivers and releases from all subcontractors/suppliers for which payment was requested under the prior application for payment; and/or (iii) receipts or bills of sale for any items. CONTRACTOR agrees that payment may be contingent upon District receiving any one or more of these documents.

(c) Before payment is made hereunder, 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 Project Documents and that the amount stated in the certificate is due under the terms of the Project Documents, which certificate shall be attached to and made a part of the claim made and filed with the DISTRICT, provided that if the ARCHITECT shall, within three (3) days after written demand therefore, fail to deliver such certificate to the DISTRICT, the CONTRACTOR may file its claim with the DISTRICT without said certificate, but together with such claim shall be filed a statement that demand was made for such certificate and that the same was refused. Thereupon, the DISTRICT will either allow said claim as presented or shall, by an order entered on the minutes of said DISTRICT state the reasons for refusing to allow said claim. It is understood, moreover, that the certificate of the ARCHITECT shall not be conclusive upon the DISTRICT, but advisory only.

(d) Upon receipt of CONTRACTOR’s payment request, DISTRICT shall review the payment request as soon as practicable after receipt for the purpose of determining that the payment request is proper. Any payment request determined not to be proper shall be returned to the CONTRACTOR as soon as practicable but not later than seven (7) days after receipt and shall be accompanied by a document setting forth in writing the reasons(s) why the payment request was not proper. Public Contract Code Section 20104.50

(e) NO PAYMENT BY DISTRICT HEREUNDER SHALL BE INTERPRETED SO AS TO IMPLY THAT DISTRICT HAS INSPECTED, APPROVED, OR ACCEPTED ANY PART OF THE WORK.

(f) Unless otherwise provided, on or before making request for final payment of the undisputed amount due under the Agreement, CONTRACTOR shall submit to DISTRICT, in writing a summary of all claims for compensation under or arising out of this Agreement which were timely filed. The acceptance by CONTRACTOR of the payment of the final amount shall constitute a waiver of all claims against DISTRICT under or arising out of this Agreement, except those previously made, in a timely manner and in writing, and identified by CONTRACTOR as unsettled at the time of CONTRACTOR's final request for payment.

(g) CONTRACTOR shall pay each of its subcontractors from whom retention has been withheld each subcontractor’s share of the retention received within seven (7) days from the time that all or any portion of the retention are received by the CONTRACTOR subject to any limitations set forth in Public Contract Code Section 7107(e).
(h) The final payment of the ten percent (10%) retention of the value of the work done under this Agreement, if unencumbered, shall be made thirty-five (35) days after recording by the DISTRICT of the Notice of Completion at the County Recorder’s Office. APPROVAL OF COMPLETION OF THE PROJECT WILL BE MADE ONLY BY ACTION OF THE GOVERNING BOARD OF DISTRICT. Public Contract Code Section 7107.

ARTICLE 60. CHANGES AND EXTRA WORK

(a) DISTRICT may, as provided by law and without affecting the validity of this Agreement, order changes, modifications, deletions and extra work by issuance of written change orders from time to time during the progress of the Project, contract sum being adjusted accordingly. All such work shall be executed under conditions of the original Agreement except that any extension of time caused thereby shall be adjusted at time of ordering such change. DISTRICT has discretion to order changes on a “time and material” basis with adjustments to time made after CONTRACTOR has justified through documentation the impact on the critical path of the Project.

(b) Notwithstanding any other provision in the Project Documents, the adjustment in the contract sum, 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 unless otherwise provided in the change order. The amount of the compensation due CONTRACTOR shall be calculated pursuant to subparagraph (e) of this Article 59. The entire compensation shall not include any additional charges not set forth in subparagraph (e) and shall not include delay damages (due to processing of a change order, refusal to sign a change order) indirect, consequential, and incidental costs including any project management costs, extended home office and field office overhead, administrative costs and profit other than those amounts authorized under subparagraph (e) of this Article 59.

(c) In giving instructions, ARCHITECT shall have authority to make minor changes in work, not involving change in cost, and not inconsistent with purposes of the Project. Otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from DISTRICT, authorized by action of the governing board, and no claim for addition to contract sum shall be valid unless so ordered.

(d) If the ARCHITECT determines that work required to be done constitutes extra work outside the scope of the Agreement, the ARCHITECT shall send a request for a detailed proposal to the CONTRACTOR. CONTRACTOR will respond with a detailed proposal within five (5) calendar days of receipt of the Request for Proposal which shall include a complete itemized cost breakdown of all labor and materials showing actual quantities, hours, unit prices, and the wage rates required for the change. If the change order involves a change in construction time, a request for the time change shall accompany the change order cost breakdown. All such requests for time shall be specified by CONTRACTOR as either “work days” or “calendar days.” Any request for time received with only the designation of “days” shall be considered calendar days. The term “work days” as used in this paragraph shall mean Monday through Friday, excluding Saturdays, Sundays and federal/State of California observed holidays. If the work is to be performed by a subcontractor, CONTRACTOR must include a bid from the subcontractor containing the same detailed information as required for CONTRACTOR. No extensions of time will be granted for change orders that, in the opinion of the ARCHITECT, do not affect the critical path of the Project.
(e) Value of any such extra work, change, or deduction shall be determined at the discretion of DISTRICT in one or more of the following ways:

(1) By mutual written acceptance of a lump sum proposal from CONTRACTOR properly itemized and supported by sufficient substantiating data to permit evaluation by DISTRICT and ARCHITECT.

(2) By unit prices contained in CONTRACTOR's original bid and incorporated in the Project Documents or fixed by subsequent agreement between DISTRICT and CONTRACTOR.

(3) By cost of material and labor and percentage for overhead and profit ("time and material"). If the value is determined by this method the following requirements shall apply:

(A) Daily Reports by Contractor.

(i) General. At the close of each working day, the CONTRACTOR shall submit a daily report to the ARCHITECT and the Inspector, on forms approved by the DISTRICT, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day, and for other services and expenditures when authorized concerning extra work items. An attempt shall be made to reconcile the report daily, and it shall be signed by the ARCHITECT and the CONTRACTOR. In the event of disagreement, pertinent notes shall be entered by each party to explain points which 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.

(ii) Labor. The report shall show names of workers, classifications, and hours worked and hourly rate. Project Superintendent expenses are not allowed.

(iii) Materials. The report shall describe and list quantities of materials used and unit cost.

(iv) Equipment. The report shall show type of equipment, size, identification number, and hours of operation, including loading and transportation, if applicable, and hourly/daily cost.

(v) Other Services and Expenditures. Other services and expenditures shall be described in such detail as the DISTRICT may require.

(B) Basis for Establishing Costs

(i) Labor. The costs of labor will be the actual cost for wages prevailing locally for each craft classification or type of workers at the time the extra work is done, plus employer payments of payroll taxes and insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from federal, state or local laws, as well
as assessments or benefits required by lawful collective bargaining agreements. The use of labor classification which would increase the extra work cost will not be permitted unless the CONTRACTOR establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental.

(ii) Materials. The cost of materials reported shall be at invoice or lowest current price at which such materials are locally available and delivered to the work site in the quantities involved, plus sales tax, freight and delivery. The DISTRICT reserves the right to approve materials and sources of supply, or to supply materials to the CONTRACTOR if necessary for the progress of the work. No markup shall be applied to any material provided by the DISTRICT.

(iii) Tool and Equipment Rental. No payment will be made for the use of tools which have a replacement value of $500 or less or where an invoice is not provided.

Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed listed rates prevailing locally at equipment rental source, or distributors, at the time the work is performed. The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Necessary loading and transportation costs for equipment used on the extra work shall be included.

If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the DISTRICT than holding it at the work site, it shall be returned, unless the CONTRACTOR elects to keep it at the work site at no expense to the DISTRICT.

All equipment shall be acceptable to the ARCHITECT, in good working condition, and suitable for the purpose for which it is to be used. Manufacturer's ratings and manufacturer's approved modifications shall be used to classify equipment and it shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

(iv) Other Items. The DISTRICT may authorize other items which may be required on the extra work. Such items include labor, services, material and equipment which are different in their nature from those required by the work and which are of a type not ordinarily available from the CONTRACTOR or any of the subcontractors. Invoices covering all such items in detail shall be submitted with the request for payment.

(v) Invoices. Vendors' invoices for material, equipment rental, and other expenditures, shall be submitted with the request for payment. If the request for payment is not substantiated by invoices or other documentation, the DISTRICT may establish the cost of the item involved at the lowest price which was current at the time of the report.

(C) The following form shall be used as applicable by the DISTRICT and CONTRACTOR to communicate proposed additions and deductions to the Agreement.
i. Material/Equipment (attach itemized quantity and unit cost plus sales tax)  
   _______ _______

ii. Labor (attach itemized hours and rates)  
    _______ _______

iii. Subtotal  
     _______ _______

iv. If subcontractor performed work, add Subcontractor's overhead and profit to portions performed by it, not to exceed 15% of Item iii. above  
    _______ _______

v. Subtotal  
   _______ _______

vi. General Contractor's Overhead and Profit, not to exceed 15% of Item v if Contractor performed the work. If subcontractor performed the work, not to exceed 5% of Item v. Of portions performed by Contractor and subcontractors, portions performed by Contractor shall not exceed 15% of Item v, and portions performed by Subcontractor shall not exceed 5% of Item v.  
  _______ _______

vii. Subtotal  
    _______ _______

viii. Bond and Liability Insurance Premium, if in fact additional bonds or insurance were actually purchased, not to exceed 1% of Item vii.  
     _______ _______

ix. Total  
    _______ _______

(4) IT IS EXPRESSLY UNDERSTOOD THAT THE VALUE OF SUCH EXTRA WORK OR CHANGES, AS DETERMINED BY ANY OF THE AFOREMENTIONED METHODS, EXPRESSLY INCLUDES ANY AND ALL OF CONTRACTOR'S COSTS AND EXPENSES, BOTH DIRECT AND INDIRECT, RESULTING FROM ADDITIONAL TIME REQUIRED ON THE PROJECT, OR RESULTING FROM DELAYS TO THE PROJECT. ANY COSTS OR EXPENSES NOT INCLUDED ARE DEEMED WAIVED. FOR PURPOSES OF DETERMINING THE COST, IF ANY, OF ANY EXTRA WORK, CHANGE, ADDITION OR OMISSION HEREUNDER, ALL TRADE DISCOUNTS, REBATES, REFUNDS, AND ALL RETURNS FROM THE SALE OF SURPLUS MATERIALS AND EQUIPMENT SHALL ACCRUE AND BE CREDITED TO CONTRACTOR, AND CONTRACTOR SHALL ENSURE THAT SUCH DISCOUNTS, REBATES, REFUNDS, AND RETURNS MAY BE SECURED, AND THE AMOUNT THEREOF SHALL BE
ALLOWED AS A REDUCTION OF CONTRACTOR’S COST IN DETERMINING THE ACTUAL COST OF CONSTRUCTION FOR PURPOSES OF ANY EXTRA WORK, CHANGE, ADDITION OR OMISSIONS IN THE WORK AS PROVIDED HEREIN.

(f) If the CONTRACTOR should claim that any instruction, request, drawing, specification, action, condition, omission, default, or other situation obligates the DISTRICT to pay additional compensation to CONTRACTOR or to grant an extension of time, or constitutes a waiver of any provision in the Agreement, CONTRACTOR shall notify the DISTRICT, in writing, of such claim within five (5) calendar days from the date CONTRACTOR has actual or constructive notice of the factual basis supporting the claim. The notice shall state the factual bases for the claim and cite in detail the Project Documents (including plans and specifications) upon which the claim is based. The CONTRACTOR’s failure to notify the DISTRICT within such five (5) day period shall be deemed a waiver and relinquishment of such a claim. If such notice be given within the specified time, the procedure for its consideration shall be as stated above in these General Conditions.

(g) “PROHIBITED USAGE OF CONTRACTOR QUALIFYING LANGUAGE STAMPS ON DISTRICT DRAWINGS OR CONTRACT FORMS.” Contractor shall not countersign or endorse any form, drawing, change order, contract or other documents with any conditions not mutually agreed to in advance by the DISTRICT and the CONTRACTOR. Endorsement of a contract, change order, specification, drawing or form with the following: “This change order is being executed without waiver of the right to seek additional compensation for such services,” shall be of no legal force or effect.

ARTICLE 61. COMPLETION

(a) The DISTRICT shall accept completion of the Project and have the Notice of Completion recorded within ten (10) days of acceptance of completion of the Project when the entire work including punch list items shall have been completed to the satisfaction of the DISTRICT. Civil Code Section 3093. The work may only be accepted as complete by action of the DISTRICT’s Governing Board.

(b) However, the DISTRICT, at its sole option, may accept completion of the Project and have the Notice of Completion recorded when the entire work including individual portions of the work shall have been completed to the satisfaction of the DISTRICT, except for minor corrective items, as distinguished from incomplete items.

(c) A final walk through of the Project to determine completion and to record the Notice of Completion shall occur only upon a valid claim by CONTRACTOR that the Project is complete except for minor corrective items. Any erroneous claims of completion by CONTRACTOR resulting in a premature walk through shall be at CONTRACTOR’s sole cost and expense and DISTRICT shall make adjustments to the contract price by reducing the amount thereof to pay for any costs incurred by the DISTRICT due to the erroneous claims by the CONTRACTOR that the Project is complete. Minor corrective items shall be identified in the final walk through of the Project.

(d) If the CONTRACTOR fails to complete the minor corrective items prior to the expiration of the thirty-five (35) day period immediately following recording of the Notice of Completion, the DISTRICT shall withhold from the final payment an amount equal to one hundred fifty percent (150%), as determined by the DISTRICT, of the amount of each item until such time as the item is completed. Public Contract Code Section
7107. At the end of such 35-day period, if there are items remaining to be corrected, the DISTRICT may elect to proceed as provided in Article 61(b) entitled "Adjustments to Contract Price."

ARTICLE 62. ADJUSTMENTS TO CONTRACT PRICE

(a) If CONTRACTOR defaults or neglects to carry out the work in accordance with the Project Documents or fails to perform any provision thereof, DISTRICT may, after ten (10) days written notice to the CONTRACTOR and without prejudice to any other remedy it may have, make good such deficiencies.

(b) The DISTRICT shall adjust the total contract price by reducing the amount thereof by the cost of making good such deficiencies. If DISTRICT deems it inexpedient to correct work not done in accordance with the Project Documents, an equitable reduction in the contract price shall be made therefore.

ARTICLE 63. CORRECTION OF WORK

(a) CONTRACTOR shall promptly remove all work identified by DISTRICT as failing to conform to the Project Documents, whether incorporated or not. CONTRACTOR shall promptly replace and re-execute its own work to comply with Project Documents without additional expense to DISTRICT and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

(b) If CONTRACTOR does not remove such work within a reasonable time, fixed by written notice, DISTRICT may remove it and may store the material at CONTRACTOR's expense. If CONTRACTOR does not pay expenses of such removal within ten (10) days' time thereafter, DISTRICT may, upon ten (10) days written notice, sell such materials at auction or at private sale and shall account for net proceeds thereof, after deducting all costs and expenses that should have been borne by CONTRACTOR.

ARTICLE 64. EXTENSION OF TIME - LIQUIDATED DAMAGES

(a) The CONTRACTOR and DISTRICT hereby agree that the exact amount of damages for failure to complete the work within the time specified is extremely difficult or impossible to determine. CONTRACTOR shall be assessed liquidated damages for each and every day the work required under the Project Documents remains unfinished past the time for completion, as set forth in the Agreement, and any extensions of time granted by the DISTRICT to the CONTRACTOR under the terms of the Project Documents. The CONTRACTOR will pay to the DISTRICT or DISTRICT may retain from amounts otherwise payable to the CONTRACTOR, said amount for each day after failure to meet the requirements of the contract completion as scheduled in the Agreement. Government Code Section 53069.85 For purposes of this article, the work shall be considered "complete" in accordance with the provisions of Article 60, "COMPLETION", except that the work may be considered complete without formal acceptance by the DISTRICT Governing Board so long as the Governing Board, at its next regularly scheduled meeting, accepts the work.

(b) CONTRACTOR shall not be charged for liquidated damages, as set forth above, because of any delays in completion of work which are not the fault or negligence of CONTRACTOR, including but not restricted to acts of God. CONTRACTOR shall within ten (10) days of beginning of any such delay, notify DISTRICT in writing of causes of delay. CONTRACTOR shall provide documentation and justification to substantiate the delay and its relation to the Project's critical path. DISTRICT shall ascertain the facts and extent of delay and
grant extension of time for completing work when, in its judgment, the findings of fact justify such an
extension. The DISTRICT’s finding of fact thereon shall be final and conclusive on the parties hereto. Extension of time shall apply only to that portion of work affected by the delay, and shall not apply to other portions of work not so affected.

ARTICLE 65. PAYMENTS WITHHELD

(a) In addition to amount which DISTRICT may retain under Article entitled "COMPLETION" and
Article entitled "PAYMENTS," DISTRICT may withhold a sufficient amount or amounts of any payment or
payments otherwise due to CONTRACTOR, as in its judgment may be necessary to cover:

(1) Payments which may be past due and payable for just claims against CONTRACTOR or any
subcontractors, or against and about the performance of work on the Project, including, without
limitation, payments made pursuant to the Article entitled "PAYMENTS BY CONTRACTOR."

(2) The cost of defective work which CONTRACTOR has not remedied.

(3) Liquidated damages assessed against CONTRACTOR.

(4) Penalties for violation of labor laws.

(5) The cost of materials ordered by the DISTRICT pursuant to Article 33 entitled
"MATERIALS AND WORK."

(6) The cost of completion of this Agreement if there exists a reasonable doubt that this
Agreement can be completed for the balance then unpaid to CONTRACTOR.

(7) Damage to DISTRICT, another contractor, or subcontractor.

(8) Site clean-up as provided in Article 44 entitled "CLEANING UP."

(9) Payments to indemnify, defend, or hold harmless the DISTRICT.

(10) Any payments due to the District including but not limited to payments for failed tests,
utilities or imperfections.

(11) Extra services for ARCHITECT.

(12) Extra services for the INSPECTOR including but not limited to reinspection required due to
CONTRACTOR’s failed tests or installation of unapproved or defective materials and
CONTRACTOR’s requests for inspection and CONTRACTOR’s failure to attend the inspection.
(13) Failure of CONTRACTOR to submit on a timely basis, proper and sufficient documentation required by the Project Documents, including without limitation, monthly progress schedules, shop drawings, submittal schedules, schedule of values, product data and samples, proposed product lists, executed change orders and verified reports.

(14) Any other obligation(s) of the DISTRICT which the DISTRICT is authorized and/or compelled by law to perform.

(b) If the above grounds are in the opinion of the DISTRICT removed by or at the expense of CONTRACTOR, payment shall be made for amounts withheld because of them.

(c) DISTRICT may apply such withheld amount or amounts to payment of such claims or obligations at its discretion. In so doing, DISTRICT shall make such payments on behalf of CONTRACTOR. If any payment is so made by DISTRICT, then such amount shall be considered as a payment made under contract by DISTRICT to CONTRACTOR and DISTRICT shall not be liable to CONTRACTOR for such payments made in good faith. Such payments may be made without prior judicial determination of claim or obligations. DISTRICT will render CONTRACTOR an accounting of such funds disbursed on behalf of CONTRACTOR.

(d) As an alternative to payment of such claims or obligations, DISTRICT, in its sole discretion, may reduce the total contract price as provided in Article 61 entitled "ADJUSTMENTS TO CONTRACT PRICE."

ARTICLE 66. TAXES

(a) CONTRACTOR will pay all applicable federal, state and local taxes on all materials, labor, or services furnished by it, and all taxes arising out of its operations under the Project Documents.

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

ARTICLE 67. NO ASSIGNMENT

The CONTRACTOR shall not assign, transfer, convey, sublet or otherwise dispose of this Agreement or of its rights, title or interest in or to the same or any part thereof. If the CONTRACTOR shall assign, transfer, convey, sublet or otherwise dispose of the Agreement or its right, title or interest therein, or any part thereof, such attempted or purported assignment, transfer, conveyance, sublease or other disposition shall be null, void and of no legal effect whatsoever; and the Agreement may, at the option of the DISTRICT, be terminated, revoked and annulled, and the DISTRICT shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the CONTRACTOR, and to its purported assignee or transferee.

ARTICLE 68. NOTICE
Any notice from one party to the other or otherwise under the Agreement shall be in writing and shall be dated and signed by party giving such notice or by a duly authorized representative of such party. Any such notice shall not be effective for any purpose whatsoever unless served in one of the following manners:

(1) If notice is given to DISTRICT, by personal delivery thereof to DISTRICT, or by depositing same in United States mail, enclosed in a sealed envelope addressed to DISTRICT, and sent by registered or certified mail with postage prepaid;

(2) If notice is given to CONTRACTOR, by personal delivery thereof to said CONTRACTOR, or to CONTRACTOR's superintendent at site of Project, or by depositing same in United States mail, enclosed in a sealed envelope addressed to said CONTRACTOR at its regular place of business or at such address as may have been established for the conduct of work under this Agreement, and sent by registered or certified mail with postage prepaid;

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

**ARTICLE 69. NO WAIVER**

The failure of the DISTRICT in any one or more instances to insist upon strict performance of any of the terms of this Agreement or to exercise any option herein conferred 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.

**ARTICLE 70. NON-UTILIZATION OF ASBESTOS MATERIAL**

(a) The CONTRACTOR will be required to execute and submit the Certificate Regarding Non-Asbestos Containing Materials.

(b) Should asbestos containing materials be installed by the CONTRACTOR in violation of this certification, or if removal of asbestos containing materials is 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 equipment shall be done only under the supervision of a qualified consultant, knowledgeable in the field of asbestos abatement and accredited by the Environmental Protection Agency (EPA).

(2) The asbestos removal contractor shall be an EPA 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 the DISTRICT 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 necessarily limited to the cost of the asbestos removal contractor, the cost of the asbestos consultant, analytical and laboratory fees, time delays and additional costs as may be incurred by the DISTRICT shall be borne entirely by the CONTRACTOR.

d) Hold Harmless: Interface of work for the Project with work containing asbestos shall be executed by the CONTRACTOR at his/her risk and at his/her discretion with full knowledge of the currently accepted standards, hazards, risks and liabilities associated with asbestos work and asbestos containing products. By execution of the Agreement, the CONTRACTOR acknowledges the above and agrees to hold harmless the DISTRICT, its Governing Board, employees, agents, and ARCHITECT and assigns for all asbestos liability which may be associated with this work. The CONTRACTOR further agrees to instruct his/her employees with respect to the above mentioned standards, hazards, risks and liabilities.

ARTICLE 71. LEAD

Pursuant to the Lead-Safe Schools Protection Act (Education Code Sections 32240, et seq.) and other applicable law, the CONTRACTOR shall not use lead-based paint, lead plumbing and solders, or other potential sources of lead contamination in the construction of any new school facility or the modernization or renovation of any existing school facility.

ARTICLE 72. GOVERNING LAW

The laws of the State of California shall govern the Project and the Agreement.
SPECIAL CONDITIONS

1. **Application of Special Conditions.** These Special Conditions form a part of the Contract Documents for the Work generally described as:
   MAIN ELECTRICAL ROOM SITE DRAINAGE
   AT SADDLEBACK COLLEGE
   BID NO. 2002

2. Contractor shall indicate the name of their Project Manager and provide a summary of his/her previous experience and phone number to be reached 24-hours a day, seven days a week.

3. Shutdown of any systems must be coordinated and scheduled with Saddleback College Maintenance and Operations staff. Provide 48-hrs. Minimum notice. Any premium paid required to perform system shutdowns shall be included in bid price.

4. Contractor to provide and coordinate all permits, inspections and fees with AQMD as necessary.

5. Contractor is required to recycle all demolished concrete and asphalt removed by this project and to provide the District with manifests indicating recycled quantities. Removal of rebar from demolished concrete as required to recycle shall be included in bid price.

6. Contractor is responsible for the hauling of all debris and disposal at a legal dumpsite.

7. The Contractor is to provide vehicular and pedestrian traffic control as required to facilitate on-campus safety on an as required basis. Roadways are to remain clear and unobstructed during the course of construction. Limited blockage for material delivery and demolition will be allowed through coordination with the College's representative.

8. Standard working hours are from 7:00am to 3:30pm. Alternate shifts and weekend work may be approved upon request. The Contractor is to provide 48 hours notice prior to the date extended hours are to be provided. All overtime or extended hours inspection charges will be paid by the contractor.

9. Construction parking is to be contained within the designated construction parking area. Temporary parking permits up to (10) will be issued at no cost to the Contractor for the duration of the project.

10. Construction materials are to be located within the designated staging area (to be determined). Contractor to install and maintain temporary fencing for the duration of the project.

11. Contractor to maintain appropriate building access and exiting points of all existing buildings in the work area during all phases of the construction work.

12. Contractor is to provide temporary sanitary conveniences for the use of employees and persons engaged in the construction work, including subcontractors and their employees, as required by law, ordinances, or regulations of public authorities having jurisdiction.

13. Any damage to existing facilities is to be repaired to the condition it was at the beginning of construction. The Contractor will be required to repair interior and exterior surfaces and finishes, utility systems, asphalt in the parking lot, curbs, driveways, signage, turf and irrigation around the construction area, etc., that is damaged as a result of construction.

14. The Contractor may use electrical utilities within the construction site. Power will be provided by the Owner.
15. The Contractor is to allow the Owner, faculty, students, staff, and other related persons including furniture & equipment movers, maintenance and operations personnel, etc., access to all existing buildings surrounding the construction site during construction.

16. The Contractor shall provide and maintain administrative field office facilities within the staging area.

17. The Contractor is to mobilize within 5 days of receipt of the Notice to Proceed. The Contractor is to initiate field investigation and preparation of shop drawings and submittals so as to submit these for review and approval by the Architect within the first 15 days of the project.

18. Drawings and Specifications. The number of copies of the Drawings and the Specifications to be furnished to the Contractor free of charge is one (1) copy.

22. (ALLOWANCE) Due to the nature of this project, unforeseen conditions may be encountered during construction. An allowance in the amount indicated in the Bid Documents is to be included as part of the base bid and will be used for unforeseen conditions. Use of this allowance will require written approval by the ARCHITECT and the DISTRICT REPRESENTATIVE. Any unused portion of the allowance shall be credited back to the District at the conclusion of the Project through a deductive change order to the Contract.
SECTION 01100 - Summary

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 Summary

A. Project Name: Saddleback College Powerhouse Drainage Project

B. Project Location: Saddleback College, 28000 Marguerite Parkway, Mission Viejo, CA 92692

C. Owner: South Orange County Community College District, 28000 Marguerite Parkway, Mission Viejo, CA 92692

D. Owner's Representative: Mr. John Ozurovich, Director of Facilities.

E. Architect: R²A Architecture, 2900 Bristol Street, Suite E-205, Costa Mesa, CA 92626, telephone 714.435.0380, fax 714.435.0383, contact Rafael Iniguez.

F. The work consists of the following:

1. Demolition and removal of existing landscaping, irrigation and paving. Designing and installing irrigation system and irrigation control wiring to replace demolished irrigation system. Installation of new grass landscaping to replace demolished landscaping. Installation of a storm drainage system sump pump and modification to the existing storm drainage system. Installation of roof gutters and downspouts tied into the existing below grade storm drain system. Installation of a CMU wall with flashing tied into the existing Powerhouse exterior wall.

G. Provide all labor, materials, equipment, freight, taxes, services and administration to complete the work.

H. The Bid Drawings and Specifications indicate the scope of the work in terms of the design concept, the dimensions of the work, and the elements of construction. The Bid Drawings and Specifications do not necessarily indicate or describe all work required for the full performance and completion of the work. Contractor shall be solely responsible for the inclusion of adequate amounts in the bid price to include all items, regardless of whether items are indicated, described, implied, or necessary in order to produce a completed project. Decisions by the Owner’s Representative as to the items of work included within the scope of these Drawings and Contract Documents shall be final and binding on the contractor.

I. By signing this contract, contractor confirms that he has familiarized himself with the conditions of the site and that he has made his own estimates regarding the facilities and the difficulties, which may arise in connection with the execution of the work.

J. Contractor shall pay all fees charged by authorities having jurisdiction and from serving utility companies and agencies, for tests and inspections conducted by those authorities, companies and agencies. Owner will reimburse contractor for actual amount of such fees, without mark-up.

1.3 Contract

A. Project will be completed under:

1.4 Use Of Premises

A. Contractor shall have full use of premises for construction operations, including use of project site, during construction period. Coordinate use of sight with Owner prior to start of construction. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of project. Perform work so as not to interfere with Owner’s day to day operations. Limit construction operations to the following days and times:

1. Monday through Friday. 7:00 a.m. to 3:30 p.m.

B. Smoking is not permitted within Building or Site, or within 25 feet of entrances, windows or air intakes.

C. Within ten (10) days of date of Notice to Proceed submit written/graphic construction plan describing intended use of construction site. Plan shall include, but not limited to, the following:

1. Daily work hours of construction personnel.
2. Parking area for construction personnel and visitors.
3. Staging area.
4. Delivery points.
5. Construction traffic patterns.
6. Construction office location.
7. Temporary toilet location.
9. Maximum number of workers expected in a single day.
10. Temporary utility connection location(s)
11. Soil stockpile areas.
12. Construction fencing layouts and pedestrian protection.
13. Parking area for Owner, Architect and site visitors.
15. Pedestrian and automobile traffic patterns around site enclosures. Written description and location of protection for people and devices.
16. Pedestrian circulation around project site.

D. Review construction plan with Owner and revise per comments received at meeting. Limit areas of activity as directed by Owner. Copy of plan shall be maintained at project site.

E. Keep driveways and entrances serving premises clear and available to Owner, Owner’s employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

1. Schedule deliveries to minimize use of driveways and entrances.
2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

F. Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

G. Contractor is aware that adjacent buildings and pedestrian areas are occupied. Contractor must conduct operations to ensure least inconvenience to public and occupied areas in adjacent buildings. Indicate adjacent building occupancy dates in construction schedule and coordinate construction activity with Owner.

1. Minimum noise impact on adjacent existing occupancies.
2. Minimum dust and debris impact on adjacent existing buildings and occupancies.
3. Maintain and provide pedestrian barricades and protection.
4. Maintain and protect exits from occupied areas at all times.

H. Arrange and pay for parking needed for contractors, workers, subcontractors and employees.

I. Arrange and pay for additional work areas as needed.

J. Access to and egress from construction site shall be in strict conformance with Owner’s requirements and City requirements. Obtain approval for construction routes from Owner and City agencies. Damage to Owner’s landscaping, paving and utilities due to contractor’s use of access route shall be repaired or replaced, as determined by and to the satisfaction of Owner, to match construction of temporary access at no additional cost or time to Contract.

K. Prior to commencement of work, the contractor shall jointly survey, photograph and video tape the site, and all other pertinent items with the Owner, noting and recording existing damage such as cracks, sags, and other damage to existing facilities.

L. Prior to commencement of work, the contractor shall jointly survey, photograph and video tape the site, and all other pertinent items with the Owner, noting and recording existing damage such as cracks, sags, and other damage to existing facilities.

L. Provide pathways, drives, gates, directional signage and other provisions as required by authorities having jurisdiction for emergency access and egress to project area and adjoining facilities.

M. Contractor shall be completely responsible for safety and security of the work site. Contractor shall keep all tools, equipment and building materials in locations where they will not be accessible to public and to vandals, so as not to present safety or security problems at work site.

N. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner’s written permission.

1.5 Owner’s Occupancy Requirements
A. Owner reserves the right to place and install equipment in completed areas of work, before Substantial Completion, provided such installation does not interfere with completion of the work. Such placement of equipment shall not constitute acceptance of the work, or substantial completion.

B. The terms “Substantial Completion” and “Beneficial Occupancy” mean the same thing and are interchangeable.

1.6 Work Not in Contract

A. The following will be provided by the Owner under separate contracts.

1. Encapsulation, removal and disposal of any hazardous materials on the site or in the existing Buildings.
2. Tests and inspections specified to be provided by the Owner in the Contract Documents.
3. Items noted NIC (Not in Contract) on the Drawings or in the Specifications.

B. When work of this Contract requires the contractor to make allowance for interfacing his work with other work indicated as NIC, the contractor shall include all costs associated therein.

1.7 Documents

A. The Contract Drawings and Specifications are not intended to be comprehensive directions on how to produce the work. Rather, the Drawings and Specifications are instruments of service prepared to generally describe the design intent for the completed work.

B. It is intended that all equipment, systems and assemblies be complete and fully functional even though not fully described. Provide all products and operations necessary to achieve the design intent described in the Contract Documents.

C. Contractor shall report to Architect immediately when elements essential to proper execution of the work are discovered to be missing or misdescribed in the Drawings and Specifications or if the design intent is unclear.

D. Should an obvious omission or misdescription of a necessary element be discovered and reported after execution of the Contract, contractor shall provide the element as though fully and correctly described, and a no-cost no time Change Order shall be executed.

E. The documents use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Language used in the Specifications and other Contract Documents is abbreviated. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications and Drawings. Requirements expressed in the imperative mood are to be performed by contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by contractor or by others when so noted.

   a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

   b. Where the terms “as shown,” “as indicated,” “as noted,” “as installed,” “as scheduled,” or terms of like meaning are used in the Drawings or Specifications, it shall be understood that reference is being made to Drawings listed in the Drawing index.
c. Where reference to the word “plans” is made anywhere in Drawings, Specifications and related Contract Documents, it shall be understood to mean the Drawings listed in the Drawing index in the set of Drawings.

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

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

H. Whenever context so requires, use of the singular number shall be deemed to include the plural and vice versa.

1. Each gender shall be deemed to include any other gender, and each shall include corporation, partnership, trust or other legal entity whenever context so requires.

2. Captions and headings of various subdivisions of Contract Documents are intended only as a matter of reference and convenience and in no way define, limit, or prescribe the scope or intent of Contract Documents or any subdivision thereof.

I. Dates indicated on each Drawing and on each page of the Specifications and other Bidding and Contract Documents in the Project Manual are for identification only. Such dates are not intended to correspond with the date of issue or Contract date.

PART 2 - Products (Not Used)

PART 3 - Execution (Not Used)

End of Section 01100
SECTION 01250 - Contract Modification Procedures

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Title 24, Part 1, Section 4-338.

1.2 Proposal Requests

A. Include within the contractor’s quality assurance program such measures as are needed to assure familiarity of the contractor’s staff and employees with all Contract requirements and these procedures for processing Change Order data.

B. Make submittals through the Architect. Submit the number of copies called for under the various items listed in this Section.

C. Based upon Owner’s request for changes in scope, RFI responses, or other changes, Architect will issue a detailed description, or Field Change Directive (FCD) that may require adjustment to the Contract Sum or Time. If necessary, the description, or FCD will include revised Drawings and Specifications.

1. Proposed Changes issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.

2. Within 5 days after receipt of proposed changes, submit a quotation estimating adjustments to the Contract Sum and the Contract Time necessary to execute the change.

   a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

   b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

   c. Include costs of labor and supervision directly attributable to the change.

   d. Include proposed Contractor's Construction Schedule that indicates the effect, if any, of the change to the construction schedule. Including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.3 Allowances

A. To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place.

1. Include costs specified as part of the allowance. Provide documentation to substantiate change in allowance cost.

2. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

3. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount.

4. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.
1.4 Change Order Procedures

A. On Owner's approval of a Proposal Request, issue a Change Order for signatures of Owner, Contractor and Architect on form approved by Owner.

B. Change Orders will be dated and numbered in sequence.

C. Each Change Order shall include the following information:

1. Project Name and Address.
2. A detailed description of the change required, with back-up documentation (Bulletin, Change Order Request, cost data, letters, etc.)
3. The reason for the change.
4. Who requested the change.
5. The dollar amount of each item (add, deduct, or no cost.)
6. Time adjustment if warranted.
7. All necessary back-up information, including sales receipts, time cards, field logs, test results, etc., necessary to justify the amounts of time indicated.

D. The Owner, Inspector, Architect and the construction manager shall review, approve, and sign the Change Order.

E. The construction manager will distribute the required number of copies (minimum of seven) of each Change Order prepared and signed and submitted through the construction manager to the Owner.

1. The Architect will retain one signed copy in his file.
2. The Owner, upon approval, will sign all copies, retain one signed copy for the Owner’s files and return the remaining copies to the construction manager for distribution to the Architect.
3. All Change Orders must be approved by the Owner’s Board prior to the contractor invoicing the Owner for that change.

PART 2 - Products (Not Used)

PART 3 - Execution (Not Used)

End of Section 01250
SECTION 01290 - Payment Procedures

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary conditions and other Division 1 Specification Sections, apply to this Section.

1.2 Schedule of Values

A. Submit Schedule of Values prior to submittal of initial application of payment within 10 days from date of Notice to Proceed.

B. Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Include the following project identification on the Schedule of Values:

1. Project name and location.
2. Name of Architect.
3. Architect’s project number.
4. Contractor’s name and address.
5. Date of submittal.
6. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
7. Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Update and submit the Schedule of Values with each Application for Payment.
9. Arrange the Schedule of Values in tabular format with separate columns to indicate the following:
   a. Related specification sections.
   b. Description of work.
   c. Name of subcontractor.
   d. Approved change orders that affect value.
   e. Dollar value.
   f. Total contract sum of base contract.
   g. Total Contract sum with total of approved change orders added it.
   h. Percent complete for each line item as work progresses.

10. Differentiate between items stored on site and items stored offsite. Include evidence of insured or bonded and secure warehousing for items stored offsite.

11. Payment for materials and equipment delivered to the project site but not yet incorporated in the work may be made at the discretion of the Owner. Such materials and equipment must be stored at the project site, properly stacked, crated or boxed and, if necessary, covered or protected from the weather. Documentation of cost of the materials and equipment must be provided with the Application for Payment.

1.3 Applications For Payment

A. Make each Application for Payment consistent with previous applications and payments as certified by Architect and paid for by Owner. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment may involve additional requirements.
B. The date for each progress payment is indicated in the Agreement between Owner and contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Submit Application for Payment to Architect on a day of each month agreed to by Owner, contractor and Architect.

D. Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of contractor. Architect will return incomplete applications without action.

   1. Match data on the current Schedule of Values and current Construction Schedule.
   2. Include amounts of Approved Change Orders issued before last day of construction period covered by application.

F. Submit 3 (three) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. All copies shall include waivers of lien and other required attachments. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. With each Application for Payment, submit waivers and releases from every entity that is lawfully entitled to file a lien arising out of the Contract and related to the work covered by the payment.

   1. Submit conditional waiver and release upon progress payment on each item for amount requested in current application, after deduction for retainage, on each item.
   2. Submit an unconditional waiver and release on each item for the amount paid in the previous application, prior to deduction for retainage.
   3. When an application shows completion of an item, submit conditional waiver and release upon final payment.
   4. Owner reserves the right to designate which entities involved in the work must submit waivers.
   5. Submit waivers of lien on forms, executed in a manner acceptable to Owner.
   6. Within 10 (ten) days of receipt of payment that includes final payment on an item of work, submit an unconditional waiver and release upon final payment for the item.

H. Submit substantiating information, as required to substantiate dollar amounts on Application for Payment.

   1. Substantiating information will normally be required only for those portions of work whose completion state cannot be readily determined by observation of the completed work.
   2. Provide one copy of substantiating information with each copy of the Application for Payment.

I. Administrative actions and submittals that must precede submittal of first Application for Payment include the following:

   1. List of subcontractors.
   2. Schedule of Values.
   3. Construction Schedule.
   5. List of contractor's staff assignments.
   7. Copies of building permits.
   8. Copies of authorizations and Business Licenses from authorities having jurisdiction in location of work.
10. Minutes from preconstruction meeting.
11. Certificates of insurance and insurance policies.

J. After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the work claimed as substantially complete.

1. Include documentation supporting claim that the work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. Reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the work.

K. Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the work.
10. Warranty and Maintenance information.
11. Record documents.

PART 2 - Products (Not Used)

PART 3 - Execution (Not Used)

End of Section 01290
SECTION 01310 - Project Management and Coordination

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:
   1. Section 01700 “Execution Requirements.”

1.2 Definitions

A. RFI: Request For Interpretation by contractor seeking interpretation or clarification of the Contract Documents.

1.3 Coordination

A. Coordinate all construction operations to ensure efficient and orderly installation of each part of the work. Coordinate construction operations that depend on each other for proper installation, connection, and operation. Establish and maintain clear communication between all trades.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation and to comply with the project schedule.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
5. Provide and maintain sufficient crew to manage, supervise, execute and complete the work by the required completion date.
6. Observe work of each subcontractor to monitor compliance with schedule and requirements of the Contract Documents.
7. Report noncompliance to Inspector of Record, with recommendation for changes.
8. Contractor shall notify Owner in writing within 10 days of completion of work installed by Owner under separate contract of the defects or discrepancies that will cause delay or cost to the Contract. Failure to notify the Owner in writing shall constitute acceptance of the work as complying with the Contract and coordinated with contractor’s interface and work to be completed.

B. Require each subcontractor to:

1. Coordinate work of his own employees and suppliers.
2. Expedite his work to assure compliance with schedules.
3. Coordinate his work with that of other prime contractors, subcontractors and work by Owner.
4. Prepare sub-schedules to comply with critical path.
5. Monitor schedules as work progresses.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
D. Coordinate scheduling and timing of required administrative procedures with construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the work. Time progress meetings to coincide with review of payment applications. Such administrative activities include, but are not limited to, the following:

1. Preparation of Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation meetings.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.
10. Monitor order, shipping and delivery of products and materials to assure timely arrival at project site.
11. Communicate with subcontractors to assure necessary labor and equipment is at the project site at time work is needed.

E. Coordinate and check layout and installation of work between all trades. Coordinate and sequence work in a logical manner to minimize impact to work in place.

F. Require all subcontractors to read and comply with all applicable requirements of the contract documents. Review documents with subcontractors to assure they are aware of all applicable requirements and to determine if problems or conflicts exist between contract requirements and subcontractor’s intended work plan. Resolve all issues of material order, workflow, and coordination of subcontractors to the satisfaction of the contract requirements.

G. Carefully review all contract documents and promptly issue an RFI in writing noting errors, inconsistencies or omissions found, prior to starting any work.

H. Field verify all dimensions needed for fabricated components.

I. Coordinate construction activities so that operations are carried out with consideration for efficient use of power, water and material.

J. Within 10 (ten) days of the date of Notice to Proceed and prior to submitting first Application of Payment, submit a list of names for the following general contractor staff. List addresses, phone numbers, email addresses and fax numbers:

1. Principal in charge.
2. Project manager(s).
3. Project superintendent(s).
4. Key administrative staff.

K. Within 10 (ten) days of Notice to Proceed, contractor shall assemble and submit 3 (three) complete sets of Contract Documents that represent the agreement between Owner and contractor. One set shall be retained and kept up to date by the contractor at the jobsite, one set provided to the Owner and one set provided to the Architect. Identify all documents as “Contract Documents” and indicate date of contract. The Contract Document Sets shall include the following:

1. General Conditions.
2. Supplemental Conditions.
3. Technical Specifications.
4. Drawings.
5. Addenda.

1.4 Submittals

A. Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Include project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
3. Number of Copies: Submit 5 (five) opaque copies of each submittal. Architect will return 3 (three) copies.

1.5 Project Meetings

A. Schedule and conduct meetings at project site on a regular basis to coordinate the work. Prepare agenda and lead the meeting. Issue meeting minutes to all concerned parties.

1. Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Distribute the agenda to all invited attendees.
3. Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 2 days of the meeting.
4. Those persons designated by the contractor to attend and participate in project meetings shall be deemed authorized to commit the contractor to solutions agreed upon or commitments of the contractor made in the project meetings.
5. The contractor will assign the same person or persons to represent the contractor at the project meetings throughout progress of the work.

B. Schedule a preconstruction meeting before ordering materials or starting construction, at a time convenient to Owner and Architect, but no later than 10 working days after the date of the Notice to Proceed. Hold the meeting at project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Authorized representatives of Owner, Architect, and their consultants; contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. All participants at the meeting shall be familiar with project and authorized to conclude matters relating to the work.
2. Discuss items of significance that could affect progress, including but not limited to, the following:
   a. Construction schedule and work plan.
b. Critical work sequencing and long-lead items.
c. Designation of key personnel and their duties.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for RFIs.
f. Procedures for Bulletins and Field Change Directives.
g. Procedures for testing and inspecting.
h. Procedures for processing Applications for Payment.
i. Distribution of the Contract Documents.
j. Submittal procedures.
k. Preparation of Record Documents.
l. Use of the premises.
m. Work restrictions.
n. Owner's occupancy requirements, use of facilities and protection of occupants.
o. Responsibility for temporary facilities and controls.
p. Construction waste management.
q. Parking availability.
r. Office, work, and storage areas.
s. Equipment deliveries and priorities.
t. First aid and safety procedures.
u. Security.
v. Progress cleaning.
w. Working hours.
x. Safety program.
y. Communication channels and procedures.
z. Rules and Regulations governing work.

3. Record and distribute meeting minutes.

C. Conduct a pre-installation meeting at project site for each construction activity required to have a pre-installation meeting.

1. Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner of scheduled meeting dates.

2. Review progress of other construction activities and preparations for the particular activity under consideration, including but not limited to the following:

b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Lead time.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility problems.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written recommendations.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.
z. Review project conditions as related to and required by warranties.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Distribute minutes of the meeting to each party present and to all other concerned parties.
5. Do not proceed with installation if meeting cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the work and reconvene the conference at earliest feasible date.
6. Obtain written statement on manufacturer’s letterhead that substrate conditions are in compliance with and satisfy manufacturer’s written requirements and warranty requirements.

D. Conduct regular coordination meetings at weekly intervals with subcontractors to coordinate construction activities.

1. In addition to representatives of each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with project and authorized to conclude matters relating to the work.
2. Review and correct minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of project.
   a. Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time. Review schedule for next period.
   b. Review present and future needs of each entity present, including but not limited the following:
      1) Interface requirements.
      2) Sequence of operations.
      3) Status of submittals.
      4) Deliveries.
      5) Off-site fabrication.
      6) Access.
      7) Work hours.
      8) Quality and work standards.
      9) Status of correction of deficient items.
     10) Field observations.
     11) RFIs.
3. Record and distribute minutes of the meeting to each party present and to all other concerned parties.
E. Conduct regular progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.

1. In addition to representatives of Owner, Architect, contractor, any other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with project and authorized to conclude matters relating to the work.

2. Review and correct minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of project.

   a. Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time. Review schedule for next period.

   b. Review present and future needs of each entity present, including but not limited the following:

      1) Construction progress and immediate issues.
      2) Schedule review (2 week look ahead.)
      3) Status of submittals.
      4) Quality and work standards.
      5) Status of correction of deficient items.
      6) Status of proposal requests.

3. Record and distribute minutes of the meeting to each party present and to all other concerned parties.

F. The Owner’s Representative may call a special meeting at any time during the course of the project. Special project meetings shall include representatives of any members of the project team requested in order to discuss problems and/or solutions that are common to the project.

1.6 Requests For Interpretation (RFIs)

A. Immediately on discovery of the need for interpretation of the Contract Documents, prepare and submit an RFI in the approved form.

1. RFIs shall originate with contractor. RFIs submitted by entities other than contractor will be returned with no response.

2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in the work.

3. Review all RFIs with contract documents prior to submitting RFI to Architect to assure that necessary information is not in the contract documents. No time or schedule extension will be approved for RFIs when information is clearly shown in the Contract Documents.

B. Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of contractor.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution. If contractor's solution impacts the Contract Time or the Contract Sum, contractor shall state impact in the RFI. RFIs submitted without solution will be returned unreviewed, and no extension of time will be approved.
10. Contractor's signature.
11. Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
12. Enumerate each page and attachments of RFI with sequential number. Indicate total number of pages on RFI form.

C. Architect will review each RFI and determine action required. RFIs received after 3:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:
   a. Requests of Means and Methods.
   b. Requests for approval of submittals.
   c. Requests for approval of substitution of products or alternate methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of Architect's actions on submittals.
   g. Incomplete RFIs or RFIs with numerous errors.
   h. RFIs which do not propose a solution.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. If contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5 working days after receipt of the RFI response.

D. On receipt of Architect's action, immediately review response and notify Architect within one day if contractor disagrees with response. After acceptance of response, update the RFI log and distribute the RFI response to affected parties.

E. Prepare and maintain a tabular log of RFIs organized by the RFI number. Include the following:

1. Owner and project name.
2. Name of contractor.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

PART 2 - Products (Not Used)

PART 3 - Execution (Not Used)

End of Section 01310
SECTION 01330 - Submittal Procedures

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary and other Division 1 Specification Sections, apply to this section.

B. Related Sections include:
   1. Section 01320 “Construction Progress Documentation.”
   2. Section 01400 “Quality Requirements.”
   3. Section 01770 “Closeout Procedures.”
   4. Section 01781 “Project Record Documents.”
   5. Section 01782 “Operation and Maintenance Data.”

1.2 Definitions

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 Submittal Procedures

A. Coordinate preparation and processing of submittals with performance of construction activities.

   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the work so processing will not be delayed because of need to review submittals concurrently for coordination. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
   3. Make all submittals of related products and materials in groups containing all associated items. Architect may reject partial submittals as incomplete or hold them until related submittals are received.
   4. Do not use submittals to obtain approval of substitutions and alternate methods.
   5. Do not use submittals to obtain approval of means and methods.

B. Allow 14 days for submittal review, including 14 days for each resubmittal, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals early enough in advance of the work to permit processing, including resubmittals. Contractor is advised to make early submittals for long lead times.

   1. Allow for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise contractor when a submittal being processed must be delayed for coordination.
   2. If intermediate submittal is necessary, process it in same manner as initial submittal.
   3. Allow for review of each resubmittal.

C. Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 x 8 inches on label or beside title block to record action taken by Architect.
3. Include the following information on label for processing and recording action taken:
   a. Project name.
   b. Date.
   c. Name and address of Architect.
   d. Name and address of contractor.
   e. Name and address of subcontractor.
   f. Name and address of supplier.
   g. Name of manufacturer.
   h. Submittal number or other unique identifier, including revision identifier. Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).

D. Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

E. Document and explain all deviations from reference standards and building code research report requirements and manufacturer’s product installation instructions and recommendations, including acknowledgement by the manufacturer that such deviations are acceptable with warranty requirements and appropriate for the project.

F. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Coordinate submittal of related items. Do not group unrelated submittals from different specification sections under a single transmittal and single submittal number; such submittals will be returned without action. Rejection of one portion of a submittal will be a rejection of the entire submittal. Architect will return submittals, without review, received from sources other than contractor. Use transmittal form supplied by Architect.

G. Clearly mark each copy of each submittal to identify pertinent materials, products, models, options, and other data.

H. Indicate dimensions and clearances required.

I. Supplement manufacturer’s standard data to provide information unique to this project, including dimensions and clearances required, performance characteristics and capabilities, and/or wiring diagrams and controls.

J. Delete information that is not applicable to project.

K. Supplement standard Drawings to provide additional information applicable to project.

L. Identify and highlight conflicts between manufacturer’s instructions and Contract Documents.

M. Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
N. Furnish copies of final submittals with mark indicating Architect’s action to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

O. Use only final submittals indicating Architect’s ‘review’ or ‘furnish as corrected’ without a requested resubmittal.

P. Although copies of standards needed for enforcement of requirements may be part of required submittals, the Architect reserves the right to require the contractor to submit additional copies as necessary for enforcement of requirements.

Q. Maintain complete and current submittal log, indicating status of all submittals and resubmittals. Provide summary of submittal status at each progress meeting.

R. Modify pre-printed data to indicate precise conditions of the project. Comply with requirements as for shop drawings. Provide space for review action stamps and, if required by authorities having jurisdiction, license seal of Architect, Architect’s design consultant and other responsible design professional, as applicable.

S. Provide hard copies of submittals, electronic copies are not acceptable.

1.4 Contractor's Use of Architect's CAD Files

A. Contractor is not allowed to use Architect’s CAD files, or printed copies of Architect’s drawings, for use in preparing submittals.

PART 2 - Products

2.1 Action Submittals

A. Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment. Provide adequate information in each submittal so that reviews may be conducted efficiently.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's written recommendations.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Manufacturer's catalog cuts.
   e. Wiring diagrams showing factory-installed wiring.
   f. Printed performance curves.
   g. Operational range diagrams.
   h. Compliance with specified referenced standards.
   i. Testing by recognized testing agency.

4. Submit six (6) copies of Product Data, unless otherwise indicated. Architect will return four (4) copies. Retain one returned copy as a Project Record Document. Provide one returned copy to Owner; provide one returned copy to IOR.
C. Shop Drawings: Prepare project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shopwork manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Notation of coordination requirements.
   j. Notation of dimensions established by field measurement.
   k. Relationship to adjoining construction clearly indicated.
   l. Seal and signature of professional engineer if specified.
   m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

3. Submit six (6) opaque (bond) copies of each submittal. Architect will return four (4) copies. Retain one returned copy as a Project Record Document. Provide one returned copy to Owner; provide one returned copy to IOR.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Attach label on unexposed side of each Sample that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Submittal number.
   e. Contractor’s review and approval stamp and signature.

3. Maintain sets of approved Samples at project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

4. Submit manufacturer’s color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Submit six (6) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return four (4) submittals with options selected.

5. Submit full-size units or Samples of size indicated, prepared from same material to be used for the work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.
2.2 **Informational Submittals**

A. Prepare and submit Informational Submittals required by Specification Sections.
   1. Submit six (6) copies of each submittal.
   2. Provide a notarized statement that includes signature of entity responsible for preparing certifications. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

B. Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

D. Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific project.

E. Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

F. Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

G. Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for project.

H. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

I. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

J. Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

K. Prepare written or published information that documents manufacturer's written recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

L. Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

M. Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

N. Submit Material Safety Data Sheets (MSDSs) directly to Owner; do not submit to Architect. Architect will not review submittals that include MSDSs and will return them unreviewed for submittal to Owner.

2.3 Subcontract List

A. Prepare a written summary identifying individuals or firms proposed for each portion of the work, including those who furnish products, equipment or fabrications. Include the following in tabular format:

1. Name, address, telephone number, email and fax number.
2. Number and title of related specification section.
3. License number and grade of license.
4. Submit copies to Architect at time of first application for payment.
5. Retain one returned copy as Record Document. Provide one returned copy to Owner. Provide one returned copy to IOR.

PART 3 - Execution

3.1 Contractor's Review

A. Review each submittal and check for completeness, correctness, and coordination with other work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark each submittal with a wet signed approval stamp before submitting to Architect. Place approval stamp on body of submittal, do not place approval stamp on binding cover. Wet sign approval stamp.

B. Along with date of contractor's review, and statement certifying:

1. That submittal has been reviewed and checked for compliance with the Contract Documents.
2. Field measurements have been determined and verified.
3. Conformance with requirements of codes, regulations, standards and design criteria, is confirmed.
4. Product catalog numbers, names and similar data are correct.
5. Work being performed by various subcontractors and trades is coordinated.
6. Field construction criteria have been verified, including confirmation that information submitted has been coordinated with work being performed by others for Owner and with actual site conditions.
7. All deviations from requirements of Drawings and Specifications have been identified and noted.

C. Submittals not reviewed by contractor will be returned without action.

3.2 Architect's Action

A. Architect will not review submittals that do not bear contractor's approval stamp and will return them without action.

B. If the Architect returns a submittal as rejected or requiring correction(s) with resubmission, the contractor, so as not to delay the progress of the work, shall promptly thereafter resubmit a submittal
conforming to the requirements of the Contract Documents; the resubmitted submittal shall indicate the portions thereof modified in accordance with the Architect’s direction. When professional certification or performance criteria of material, systems or equipment is required by the Contract Documents, the Architect shall be entitled to rely upon the accuracy and completeness of such calculations and certifications accompanying submittals. The Architect’s review of the submittals is for the limited purposes described in the Contract Documents.

C. Architect will review each action submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action necessary. Submittals will only be reviewed for conformance with design intent and information in the Contract Documents.

D. Architect will review each informational submittal and will return it without action.

E. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

F. Submittals not required by the Contract Documents may not be reviewed and will be discarded.

G. All reviewed submittals will be returned to contractor.

H. Architect will review submittals as originally submitted and for the first resubmission. After two submissions, without acceptance, of a particular submittal, contractor will bear expense for additional Architect review of that submittal, through deductive change order.

I. Include all costs for preparing and handling submittals including costs associated with printing and distribution of submittals to a subcontractor.

J. In review of submittals, Architect will not provide dimensions or elevations for field conditions, or for proposed conditions available from a detailed review and analysis by contractor of project documents.

K. Changes in the work shall not be authorized by submittal review actions. Not review action, implicit or explicit, shall be interpreted to authorize changes in the work. Changes shall only be authorized by separate written direction, in accordance with the conditions of the Contract. Contractor shall review submittals upon receipt from Architect and immediately notify Architect in writing of any changes in the work that are indicated. Contractor assumes responsibility for proceeding with work based on Architect’s reviewed submittals and shall be responsible for all corrections and modifications necessary to bring completed work in compliance with Contract Documents at no additional cost to Owner.

L. Review actions by Architect and Architect’s consultants shall not relieve contractor from compliance with requirements of the Contract Drawings and Specifications.

3.3 Distribution of Submittals after Review

A. After receipt of reviewed submittals, contractor shall distribute one copy of reviewed submittals within three working days of receipt, as follows:

2. Record documents file.
3. Subcontractors.
4. Supplier or fabricator.
5. Owner’s inspector.
6. Owner’s representative.
SECTION 01320 - Construction Progress Documentation

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this section.

B. Related Sections include:

   1. Section 01290 “Payment Procedures.”
   2. Section 01322 “Photographic Documentation.”

1.2 Definitions

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

B. CPM: Critical Path Method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity. Float time belongs to Owner.

E. Major Area: A story of construction, a separate building, or a similar significant construction element.

F. Milestone: A key or critical point in time for reference or measurement.

1.3 Schedule Copies

A. Submit 5 copies minimum of schedule prior to submittal of first Payment Application.

B. Construction Schedule: Submit 5 opaque copies of initial schedule, large enough to show entire schedule for entire construction period. Submit an electronic copy of schedule in PDF format.

C. Daily Construction Reports: Submit 2 copies at weekly intervals.

D. Field Condition Reports: Submit 2 copies at time of discovery of differing conditions.

E. Provide 2 week look ahead at each progress meeting.

1.4 Coordination

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
B. Coordinate Construction Schedule with the Schedule of Values, Submittals Schedule and payment requests.

1.5 Quality Assurance

A. Contractor shall maintain skilled personnel with experience in Construction Project Management (CPM) scheduling and reporting techniques. Scheduler must have a minimum of two (2) years of experience preparing CPM schedules.

PART 2 - Products

2.1 Submittals Schedule

A. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates. Coordinate Submittal Schedule with Construction Schedule. Submit concurrently with submittal of Construction Schedule. Include the following:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the work covered.
6. Scheduled date for Architect's final release or approval.

2.2 Construction Schedule

A. Extend schedule from date established for Notice to Proceed to date of Final Completion. Show the following dates and portions of time:

1. Notice to Proceed.
2. Contract Completion Date.
3. Date of Substantial Completion.
4. Start and Finish dates for each Activity.
5. Critical Path.
6. Float Time. Do not sequester float time through strategies such as extending activity durations to consume available float time associated with non critical activities to cause the work to become critical. Float time is owned by Owner.
7. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
8. Show all contractual milestone dates, fabrication completion dates, delivery dates, lead times, and curing times.
9. Deliverable dates such as submittal approval dates, mockup approval dates, deferred approval dates, testing and inspection dates and all other dates affecting progress of the work.
10. Dates that designated working spaces, storage areas, access, and other facilities to be made available by the Owner.
11. Connections to or penetration(s) of existing structures.
12. Earliest dates when infrastructure and systems are ready for telecom wiring and low voltage installation.
13. As-built documentation preparation time.
14. Start up and operational testing times and dates.

B. Treat each story or separate area as a separate numbered activity for each principal element of the work.
1. Define and arrange activities so no activity is longer than 10 (ten) days.
2. Include procurement time for long lead items requiring more than 10 (ten) days procurement time, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery. Include procurement time within Activity time.
3. Include review and resubmittal times for submittals. Coordinate submittal review times in Construction Schedule with Submittals Schedule.
4. Include time necessary for startup and testing.
5. Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion. Show substantial completion date.

C. Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the work is affected.

1. Arrange list of activities on schedule by phase.
2. Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   g. Seasonal variations.
   h. Environmental control.
   i. Required inspections.

3. Indicate important stages of construction for each major portion of the work.
4. Include critical milestone dates such as Inspections and Completion dates.

D. For each proposed contract modification that affects contract time, prepare a time-impact analysis to demonstrate the effect of the proposed change on the overall project schedule. Submit analysis with proposed change.

E. Prepare Construction Schedule using a computerized, time-scaled CPM network analysis diagram for the work. Failure to include any work item required for performance of this Contract shall not excuse contractor from completing all work within applicable completion dates, regardless of Owner/Architect approval of the schedule.

1. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
2. Use "one workday" as the unit of time. Include nonworking days and holidays in the schedule.
3. Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities.
4. Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.

2.3 Reports

A. Prepare a daily construction report recording the following information concerning events at project site:

1. Equipment at project site.
2. Material deliveries.
3. High and low temperatures and general weather conditions.
4. Accidents.
5. Stoppages, delays, shortages, and losses.
6. Meter readings and similar recordings.
7. Orders and requests of authorities having jurisdiction.
8. Services connected and disconnected.
9. Equipment or system tests and startups.
10. Number of workers on site.
11. Estimated completion date of each activity.
12. Specific problems, if any, with the actions and/or inaction of subcontractors, the Owner, Architect, consulting engineers, or the Contract Documents which are preventing contractor’s work from being properly completed per the schedule.
13. Subcontractors and trades performing work under the Contract on the Site, and number of workers each and number of hours worked by each worker.
14. Others on the Site performing work for Owner under separate contracts.
15. List of visitors to site, giving name, company or agency affiliation and telephone number.
16. Description of situations and circumstances which could delay normal progress of work or which could be basis of claim for change in Contract Time or Contract Sum.
17. Changes to work and who authorized changes.
18. Comments, as contractor determines are appropriate for project record.

B. Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions and photographs, together with recommendations.

C. When an event of an unusual and significant nature occurs at the project site, whether or not it is directly related to the work, prepare and submit a report. List chain of events, individuals involved, photographs and written description.

D. Submit daily report to Owner’s Representative by 4:00 p.m. daily on each and every working day.

PART 3 - Execution

3.1 Construction Schedule

A. Within 5 (five) days of Notice to Proceed conduct pre-scheduling meeting to review methods and procedures related to the contractor’s construction schedule, including, but not limited to, the following:

1. Review software limitations, schedule content and format.
2. Verify qualifications of personnel that will develop and update schedule.
3. Discuss constraints, including phasing, work stages, area separations, interim milestones, substantial completion, partial occupancy, and completion dates.
4. Review time required for review of submittals and re-submittals. Review time requirements for long lead items.
5. Review requirements for tests and inspections by independent testing and inspecting agencies.
6. Review time required for completion of startup procedures.
7. Review procedures for updating schedule.
8. Present 30 day preliminary schedule.

B. At monthly intervals, update schedule to reflect actual construction progress and activities. Issue updated schedule with each Application for Payment.
C. Distribute copies of construction schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other interested parties.

1. Post copies in project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in performance of construction activities.

3.2 Corrective Actions

A. Contractor agrees that whenever it becomes apparent to the Owner from the current monthly updated Contract Baseline Schedule that the contract completion date will not be met, the contractor will take corrective actions, at no additional cost to Owner, including but not limited to:

1. The contractor shall prepare a recovery schedule to demonstrate how lost time will be recouped. Prior to revising the baseline schedule the recovery shall be approved by the Owner.
2. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of work.
3. 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, sufficiently to substantially eliminate the backlog of work. This paragraph shall not be construed to permit contractor to violate the work hour restrictions specified in the Contract Documents.
4. Reschedule activities to achieve maximum practical concurrence of accomplished activities.

B. Should the contractor fail to complete the work per the agreed schedule and requires overtime and/or weekend work and/or holiday work to remedy schedule deficiencies, the contractor will bear all expenses associated with the unscheduled overtime work. In the event the contractor requires said unscheduled overtime, the contractor will be required to reimburse the Owner, through deductive change order, for inspection and construction manager support.

C. Should contractor fail to complete project by completion date and project work time runs past completion date, contractor shall be responsible for all costs and expenses associated with extended work time. Contractor shall reimburse Owner, through deductive change order, cost for professional fees. This requirement is in addition to any specified liquidated damages.

3.3 Two Week Look-Ahead Schedule

A. At each weekly project meeting and based upon the latest approved schedule, the contractor shall submit a weekly two-week look-ahead schedule with actuals through two days prior to the scheduled meeting. The schedule shall show summary of non-critical activities and each critical activity. In addition, a comparison between the planned versus actual of the preceding activities shall be shown.

End of Section 01320
SECTION 01322 - Photographic Documentation

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this Section.

1.2 Submittals

A. Submit electronic copies of photographs taken since last progress meeting, at each progress meeting.

B. Identify each set of images on transmittal with the following information:

1. Name of project.
2. Name of contractor.
3. Date stamped by camera.
4. Unique sequential identifier.

C. Submit a complete set of digital image electronic files at completion of project. Identify electronic media with date photographs were taken at time of Substantial Completion. Submit images that have same aspect ratio as the sensor, uncropped.

PART 2 - Products

2.1 Photographic Media

A. Provide images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, 150 DPI minimum.

PART 3 - Execution

3.1 Construction Photographs

A. Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the work. Photographs with blurry or out-of-focus areas will not be accepted.

B. Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Include date and time in filename for each image.
2. Maintain one set of images on CD-ROM in the field office at project site, available at all times for reference. Identify images same as for those submitted to Architect.

C. Before commencement of the work, take color, digital photographs of project site and surrounding properties, including existing items to remain during construction, from different vantage points.

1. Flag construction limits before taking construction photographs.
2. Take photographs to show existing conditions adjacent to property before starting the work.
3. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
4. Take additional photographs to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Take periodic construction photographs one day before the cutoff date associated with each Application for Payment. Select vantage points to show status of construction, progress and adjacent properties since last photographs were taken.

E. Take photographs of substrate conditions just prior to the start of each portion of the work.

F. Take digital color photographs of entire scope of work at time of Substantial Completion. Submit photographs to Owner and Architect with transmittal.

G. Take color digital photographs of entire scope of work at time of Completion. Submit photographs to Owner and Architect with each transmittal.

End of Section 01322
SECTION 01400 - Quality Requirements

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.

2. Requirements for contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 2 through 16 Sections for specific test and inspection requirements.

1.2 Definitions

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the work to evaluate that actual products incorporated into the work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the project before products and materials are incorporated into the work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by a qualified testing agency acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the work and for completed work.
I. Testing Agency: A professionally licensed entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

K. “Minimum experience” means having successfully completed a minimum of five (5) years’ experience on projects similar in size and scope of the type of work required for this project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

L. IOR: Authorized Inspector of Record.

M. OAR: Owner’s Authorized Representative

N. CBC: California Building Code, Title 24, California Code of Regulations.

1.3 Conflicting Requirements

A. If compliance with two or more standards or code requirements is specified and the standards or code requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most expensive requirement at no additional cost to Owner. When uncertainties exist and requirements are different, but apparently equal, submit RFIs to Architect for a decision before proceeding.

B. The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. When uncertainties exist submit RFI to Architect for a decision before proceeding.

C. When conflicts exist within drawings provide Architect with RFI for clarification and provide more expensive option at no additional cost or time to Contract.

D. When conflicts exist within specifications provide Architect with RFI for clarification and provide more expensive option at no additional cost or time to Contract.

E. When conflicts exist between drawings and specifications provide Architect with RFI for clarification and provide more expensive option at no additional cost or time to Contract.

F. If conflicts exist between code requirements, authorities having jurisdiction and contract documents provide RFI to Architect for clarification and provide more expensive option at no additional cost or time to Contract.

G. Where the Drawings or Specifications require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, the Drawings and Specifications shall take precedence so long as such increase is legal.
H. Where no requirements are identified in the Drawings or Specifications, comply with all requirements of applicable codes, ordinances and standards of authorities having jurisdiction.

I. Where laws, ordinances, rules and regulations require more care or greater time to accomplish work, or require better quality, higher standards or greater size of products, work shall be accomplished in conformance to such requirements with no change to the Contract Time and Contract Sum, except where changes in laws, ordinances, rules and regulations occur subsequent to the execution date of the Contract.

J. Unless more stringent requirements are indicated or specified, comply with manufacturer’s instructions and recommendations, reference standards and building code research report requirements in preparing, fabricating, erecting, installing, applying, connecting and finishing work.

K. In determining “most expensive requirement” and “options” in items “A” through “J” above, consider all factors, such as but not limited to, material cost, order processing, submittal time, delivery time, fabrication labor and time, labor and installation, and affects on overhead and general conditions.

1.4 Certifications and Qualifications

A. For testing agencies retained by contractor, submit proof of qualification to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the work and test and inspection method.
8. Complete test or inspection data.
9. Test and inspection results with interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Name and signature of laboratory inspector.
12. Recommendations on retesting and reinspecting.

C. For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the work.

D. Submit technical data, test reports, calculations, surveys, and certifications based on field tests and inspections by independent inspection and testing agency and by authorities having jurisdiction. Reports of results of inspections and tests shall not be considered Contract Documents.

1.5 Quality Assurance

A. Contractor shall bring together the various parts, components, systems and assemblies as required for the correct interfacing and integration of all elements of work. Contractor shall coordinate work to correctly and accurately connect abutting, adjoining, overlapping and related elements, including work under separate contracts by Owner, utility agencies and companies.
B. Contractor shall provide one person who shall be both knowledgeable and responsible for all work to be performed on this project at all times during normal work hours. Contractor’s appointed representative shall be responsible for all directions given to him and said directions shall be binding as if given to the contractor. Contractor’s representative shall be responsible to coordinate all work to be performed. Do not change contractor’s appointed representative without prior approval of Owner.

C. Provide firms and individuals trained and experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this project, whose work has resulted in construction with a record of successful in-service performance. Provide direct supervision of all workers by supervisors trained and experienced in the type of work being performed. Provide workers performing the actual work who are trained and experienced in the type of work they are being asked to execute.

D. Require each portion of the work to be completed under the direct continuous supervision of a competent foreman, trained and experienced in that portion of work, capable of understanding the Contract Documents and implementing their requirements.

E. All work shall be installed by a knowledgeable contractor and defined “eligible” by the specified materials manufacturers. The specifications and recommendations of the manufacturer whose materials are used shall be strictly adhered to during the application or installation of materials; unless Contract Documents or referenced codes describe more stringent requirements.

F. The contractor shall be responsible for being current and knowledgeable for all building codes involved for all trades under his direction.

G. Provide firms and individuals experienced in manufacturing products or systems similar to those indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

H. Provide firms and individuals experienced in producing and fabricating products similar to those indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

I. Provide the services of professional engineers who are legally qualified to practice in jurisdiction where project is located and who is experienced in providing engineering services of the kind required. Engineering services are defined as those performed for design and installation of the systems, assemblies, or products that are similar to those indicated for this project in material, design, and extent.

J. Certain sections of the specifications require execution of the work by manufacturer certified installers. Certified installers are to provide supervisors to directly oversee and manage the workers executing the work. Certified installers shall provide supervisors and workers thoroughly trained in the handling and installation of products specified.

K. When required, provide an authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this project.

L. Before installing portions of the work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect 7 (seven) days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction. Reconstruct mockup as necessary to obtain Architect’s approval.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed work.
6. Construct mockups of identical materials to be used in construction.
7. Coordinate with necessary trades to construct mockup to reflect actual construction. Obtain materials, services and other trades to participate in mockup construction so mockup reflects construction and conditions proposed in finished work in all respects including but not limited to supporting structure, substrates, flashings, attachments, backing and finished materials.
8. Architect’s review and comment, or no comment of mockup, does not relieve contractor from fulfilling requirements of Contract Documents. Deviations from Contract requirements in completed work, whether noted or not noted in mockup, are contractor’s responsibility and must be corrected at no additional cost or Owner.
9. Demolish and remove mockups that are not included in the work.

M. Any additional work beyond that specified or illustrated, or any modifications thereto, that are necessary for the furnishing of required warranty shall be provided by the contractor without additional cost to the Owner.

N. Contract Documents may require that certain construction activities be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and the assignments are requirements over which the contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the contractor. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated. Requirement for specialists shall not supersede building codes and regulations governing the work.

1. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
2. Use of titles such as “carpentry” is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
3. Requirement for specialists shall not supersede building codes and similar regulations governing the work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

O. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

P. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion and disfigurement.

Q. Furnish without extra charge any material and labor required in order to comply with jurisdictional authorities, applicable codes and regulations, and referenced standards.

R. Contractor has overall responsibility for all subcontractors, materials suppliers and others providing goods and services to and through the contractor under the Contract.

S. Contractor shall require all subcontractors, trades, crafts and suppliers to coordinate their portion of work with the contractor’s field superintendent to prevent scheduling, sequencing, dimensional and other conflicts and omissions.
T. Contractor shall coordinate and schedule work under the Contract with work being performed for project under separate contracts by Owner, serving utilities and public agencies. Contractor shall make direct contacts with parties responsible for work of the project under separate contracts, in order to provide timely notifications and to facilitate information exchanges.

U. The applicable edition of all codes shall be that adopted at the time of issuance of permits by the authority having jurisdiction and shall include all modifications and additions adopted by that authority. The applicable date of laws and ordinances shall be that of the date of performance of the work.

1.6 Quality Control

A. Owner will select an independent testing agency to conduct tests, sampling, and testing of materials. Selection of material to be tested shall be by the agency or the IOR and not by contractor. Owner will engage a qualified testing agency and special inspectors to conduct special tests and inspections required by authorities having jurisdiction. Special inspections are indicated in the Contract Documents. Procedural and acceptance criteria shall be as set forth in the California Building Standards Administrative Code and as set forth in the California Building Code. Testing and inspections shall meet requirements of CBC 17A.

B. Travel, lodging and meal costs related to any and all off-site material and/or product fabrication testing and/or inspection required by the Contract Documents, State or Local codes and regulations, in excess of a 50 mile radius from the project site, related to this Contract, shall be paid for by contractor. Contractor shall assume the responsibility to pay for these additional costs by the authorities having jurisdiction.

C. Owner will directly reimburse testing agency for all costs for all Building or Fire Official required tests and inspections, but may be reimbursed by contractor for such costs as noted in related sections of the Contract Documents.

1. Contractor will reimburse Owner or directly reimburse testing agency for all costs for retesting required by failed tests as set forth in Sections 4-333(c) and 4-335(c) of the California Building Standards Administrative Code.

2. Contractor will reimburse Owner for testing services requested by contractor which are beyond the scope of the work.

D. Independent testing agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the work.

E. Independent testing agency shall not perform any duties of contractor.

F. Contractor shall notify the Owner a sufficient time in advance of the manufacture of material to be supplied by contractor as required under the Contract Documents, which must by terms of the Contract Documents be tested, in order that the Owner may arrange for the testing of same at the source of supply. Contractor will supply and otherwise make materials to be tested available to the testing agency in time to receive results and make necessary corrections and retest, in order to not impact the project schedule.

G. Any material shipped by contractor from source of supply prior to having satisfactorily passed required testing and inspection shall not be incorporated into the work.

H. Contractor shall provide an insulated curing box with capacity for not less than twenty (20) concrete cylinders and relocate curing box and cylinders as rapidly as required in order to provide for progress of the work.
I. Where indicated, engage a factory-authorized service representative to inspect substrates, field-assembled components and equipment installation, including service connections. Report results in writing to Owner and Architect.

J. Regardless of whether original tests or inspections were contractor’s responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced work that failed to comply with Contract Documents.

K. Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at project site.
8. Make construction materials available to testing agency for testing.

L. Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting. Schedule time for tests, inspections, obtaining samples, and similar activities.

1. By advanced discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings. Provide all required time within the construction schedule.
2. 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.
3. All overtime costs required for testing and inspection shall be paid by Owner and deducted from monies due the contractor.

M. Local legally constituted public authorities having jurisdiction over this construction, the IOR, the Owner and their designated representative shall be the only authorized persons empowered to direct tests to be made when it appears to be necessary to determine compliance or non-compliance to the requirements of the work.

N. Contractor shall assist in all tests and inspections required by authorities having jurisdiction over the work under this Contract, including those required by Public Works Department, Fire Department, Health Department and similar authorities having jurisdiction. Such assistance shall include notification of the Project Inspector when the work is ready for inspection or re-inspection.

O. If the contractor elects to change material sources after mix designs, formulations and fabrications have been established, the contractor shall reimburse the Owner for all costs incurred in the re-testing of materials and the re-design and review of mixes, formulations and fabrications.

P. Provide such other testing and inspecting as are specified to be furnished by the contractor in this Section and/or elsewhere in the Contract Documents.
Q. Unless otherwise indicated or specified, all products shall be new, free of defects and fit for the intended use.

R. Contractor shall ensure that products, services, workmanship and site conditions comply with requirements of the Drawings and Specifications by coordinating, supervising, testing and inspecting the work and by utilizing only suitably qualified personnel.

S. When no quality basis is prescribed, the quality shall be in accordance with the best accepted practices of the construction industry for the locale of the project, for similar projects and in compliance with applicable codes, laws, rules and regulations of authorities having jurisdiction.

T. Contractor shall employ and assign knowledgeable and skilled personnel as necessary to perform quality control functions to ensure that the work is provided as required.

U. Contractor shall coordinate and schedule field quality control activities of Owner’s independent testing and inspection agency and inspectors from authorities having jurisdiction. Contractor shall provide 48 hours minimum notice in advance of expected time of operations which require testing and inspection.

V. Work shall be subject to verification of quality by Owner, Architect, other responsible design professionals, authorities having jurisdiction, serving utilities and product manufacturers, in accordance with provisions of the Conditions of the Contract and requirements of product manufacturers.

W. Contractor shall provide all information and assistance necessary for verification of quality, including that by and from subcontractors, fabricators, materials suppliers, manufacturers, installers, applicators and others performing work. Such verification may include observation, inspection and testing at mill, plant, shop or project site locations where products for the work are manufactured, fabricated or assembled.

X. Employment of independent testing laboratory, including Project Inspector, and observations by Owner, Architect and Architect’s consultants shall in no way relieve contractor of duties and responsibilities to perform work in full conformance to all requirements of Contract Documents and applicable Building Code and other regulatory requirements.

PART 2 - Products (Not Used)

PART 3 - Execution

3.1 Testing and Inspection Log

A. Maintain a testing and inspection log at project site. Post changes and modifications as they occur. Provide access to log by Architect, IOR and Owner.

3.2 Repair and Protection

A. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

   1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

   2. Comply with requirements of Section 01731 "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.
C. Repair and protection are contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

3.3 Test Reports

A. One copy of each test report shall be forwarded directly to Owner, Inspector of Record, Architect, structural engineer, construction manager and contractor by the testing agency. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reports. Reports shall show that the material or materials were sampled and tested in accordance with the requirements of CBC, Title 24, Parts 1 and 2, and with the approved Contract Documents. Test reports shall show the specified design strength. Test reports shall also state whether or not material or materials tested comply with the specified requirements as set forth in Section 4-335(d) of the California Administrative Code, Title 24.

3.4 Verification of Test Reports

A. Testing agency shall submit to Owner, Architect, contractor, project inspector, construction manager, and structural engineer a verified report, in duplicate, covering tests that were performed by that agency during the progress of the work. Such report shall be furnished each time construction on the work is suspended, covering tests up to that time, and prior to Final Completion of the work, covering all tests as set forth in Sections 4-335(e) and 4-336 of the California Administrative Code, Title 24, Part I.

3.5 Site Visitations

A. Owner, Architect and IOR shall have access to the site at all times, to all parts of the work and to all shops/warehouses where materials or work is in preparation, fabrication or storage.

B. Owner, Architect and IOR shall have the right to reject materials and workmanship deemed defective Work, and to require their correction. Rejected work and materials shall be corrected in a satisfactory manner without charge to Owner. If contractor does not correct rejected work within a reasonable time, fixed by written notice and in accordance with the terms and conditions of the Contract Documents, Owner may correct rejected work and recover design, engineering, repair, replacement and administrative costs through deductive change order.

C. The Owner at any time prior to Final Completion reserves the right to make an examination of work already completed by removing work in place. The contractor shall, on request, promptly furnish all necessary facilities, labor, and materials. If work is found to be defective in any respect due to the fault of the contractor all expenses of such examinations and of satisfactory reconstruction will be at the contractor’s expense. If work is found to meet the requirements of Contract Documents, the additional cost of examination and replacement shall be paid for by Owner.

D. Should Architect or Owner determine that it is not feasible or in Owner’s interest to require non-conforming work to be repaired or replaced, and should non-conforming work not be in conflict with the requirements of authorities having jurisdiction, an equitable reduction in Contract Sum shall be made by agreement between Owner and contractor. If equitable amount cannot be agreed upon, a Construction Change Directive will be issued and the amount in dispute resolved in accordance with applicable provisions of the Conditions of the Contract.

E. Contractor is responsible for compliance with all applicable local, state, and federal codes, regulations, ordinances, restrictions, and requirements.

F. Acceptance of non-conforming work, without specific written acknowledgement and approval of the Owner and, as applicable, authorities having jurisdiction, shall not relieve the contractor of the obligation.
to correct such work. Once discovered, contractor shall correct and modify work to bring it into compliance with Contract Documents at no additional cost or time to Contract.

G. Architect and Architect’s consultants will not accept any work not produced in full conformance with the Contract Documents and the requirements of authorities having jurisdiction, whether known or unknown by Architect or Architect’s consultants.

3.6 Special Inspector

A. Special Inspector:

1. As set forth in Section 4-333© of the California Building Standards Administrative Code.
2. As set forth in CBC Section 1701A.5, 1704A.1.

3.7 Inspector of Record

A. Project Inspector of Record (IOR), employed by the Owner in accordance with requirements of California Code of Regulations, Title 24, will be assigned to the work.

1. Project inspector shall be approved by Architect, Structural Engineer, and DSA.
2. As set forth in Section 4-333(b) of the California Administrative Code, Title 24, Part I.
3. Duties of Project Inspector are specifically defined in Section 4-342 of the California Administrative Code, Title 24, Part I.

B. The work shall be subject to the personal continuous observation of the IOR. He shall have free access to any or all parts of the work at any time.

C. Inspection of work shall not relieve contractor from obligation to fulfill all of the terms and conditions of the Contract Documents.

D. Contractor shall be responsible for scheduling times of inspection, tests, sample taking, and similar activities of the work. Provide 48 hour minimum notice to IOR and testing laboratory for tests and inspections.

E. All work must be inspected and approved by IOR prior to being covered by other work.

F. Excessive costs for the Project Inspector beyond normal services shall be charged to the contractor.

3.8 Tests and Inspections


B. Required tests and inspections include but are not limited to the following.

1. See CBC, and Divisions 2 through 16 Sections for additional information.

C. Excavations, Foundations and Retaining Walls: CBC, Chapter 18A.

D. Concrete: CBC, Chapter 19A.

1. Materials:
a. Concrete Materials: 1704A.4.1, 1903A.
c. Concrete Aggregate: 1903A.3.

2. Quality:

3. Inspection:
   a. Batch Plant Inspection: 1704A.4.3.

E. Masonry: CBC, Chapter 21A:

1. Materials:
   a. Masonry Units: 2103A.1, 2102A.2, 2102A.4, 2103A.5, 2103A.6

2. Quality:
   e. Combination of Units: 2105A.6.

3. Inspection:
   b. Reinforcing Bar Welding Inspection: 1704A.4.2.

End of Section 01400
SECTION 01420 - References

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 Definitions

A. Basic Contract definitions are included in the Conditions of the Contract.

B. Approved Equal or Equal: As approved and accepted by the Architect and Owner.

C. Approved: The term “approved” or “approved as noted,” where used in conjunction with action on the submittals, applications, and requests, is limited to the responsibilities and duties of the Architect stated in General Conditions. Such approval shall not release the contractor from responsibility to fulfill Contract Document requirements, unless otherwise provided in the Contract Documents.

D. As Necessary: Essential to completion of work.

E. As Required: As demanded by Contract Documents.

F. As Selected, As Approved, As Directed: Or words of similar import mean as selected by, as approved by, or as accepted by the Architect. No implied meaning shall be interpreted to extend Architect’s responsibility into the contractor’s area of construction supervision.

G. As Shown, As Detailed: And words of similar import mean as indicated on the Drawings.

H. Building Department, Authorities Having Jurisdiction: All agencies, individually or collectively, charged by statute with administration/enforcement of requirements of the Building Code and other jurisdictional requirements at project location.

I. Concealed: Embedded and/or hidden in masonry, concrete or other construction, installed within furred spaces, within a wall/partition or above ceilings, in trenches, in crawl spaces, or other enclosures.

J. Days: Calendar days in every case.

K. Directed: Terms such as “directed,” “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” mean “directed by the Architect through the construction manager,” “requested by the Architect through the construction manager,” and similar phrases. However, no implied meaning shall be interpreted to extend the Architect’s responsibility into the contractor’s area of construction supervision.

L. Division: Part of these Specifications except where obvious intent is the act or process of dividing. Divisions are groups of related Sections.

M. Equipment: Means a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

N. Exposed: Not installed or concealed as defined above.
O. Exterior: A space which does not meet the definition for “interior” above.

P. Fabricated: Items specifically assembled or made out of selected materials to meet individual design requirements for the project.

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

R. Indicated: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

S. Install: Operations at project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

T. Installer: An entity engaged by the contractor either as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform. The term “experienced,” when used with the term “installer” means having a minimum of five (5) previous projects similar in size and scope to this project, and familiar with the precautions required, and has complied with requirements of the authority having jurisdiction.

U. Interior: A space completely enclosed by walls, solid door(s), floor and ceiling.

V. Manufactured: Applies to standard units or articles usually mass-produced.

W. Manufacturer’s Directions: Manufacturer’s written instructions, recommendations, specifications for use and installation.

X. Materials: Products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form part of work.

Y. Named Products: Items identified by manufacturer’s product name, including make or model designation, indicated in manufacturer’s published product literature current as of the date of the Contract Documents.

Z. Product(s): Materials, systems, and equipment, and terms of similar intent.

AA. Project Site: Space available for performing construction activities. The extent of project site may or may not be identical with the description of the land on which project is to be built.

BB. Provide: Furnish and install, complete and ready for the intended use.

CC. Regulations: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the work.

DD. Section: A distinct part of these Specifications, except where obvious intent is one of several components, a piece. Section is usually a basic unit of work.

EE. Shall: Is mandatory.

FF. Submit, Submittal: Furnish to Architect for review, unless otherwise stated.

References

01420 - 2
GG. Testing Laboratories: An independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere and to report on, and, if required, to interpret, results of those inspections or tests.

1.3 Industry Standards

A. Unless the Contract Documents include more stringent requirements, applicable reference standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference. In case of conflict between performance standard or regulation and contract documents provide more expensive requirement at no additional cost to Owner.

B. Comply with referenced standards in effect as of date of the Contract Documents. Referenced standards take precedence over standards that are not referenced but recognized in the construction industry as applicable.

C. Comply with all conditions of approval from governing authorities.

D. In case of conflict between reference standards or reference standards and governing authorities, provide the most expensive requirements, at no additional cost to Owner.

E. The contractual relationship and responsibilities of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

F. Each entity engaged in construction on project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source. Maintain a copy of all applicable regulations and reference standards at the project site.

G. In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for the context of the requirements. Refer instances of uncertainty to the Architect for decision before proceeding.

H. Where an alternative or optional grade, class or type of product or execution is included in a reference but is not identified on the Drawings or in the Specifications, provide the highest, best and greatest of the alternatives or options for the intended use and prevailing conditions.

I. Where abbreviations and acronyms are used in Contract Documents, they shall mean the recognized name of the entities in the following list. This list is not inclusive of all organizations.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACI</td>
<td>ACI International (American Concrete Institute)</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>AISI</td>
<td>American Iron and Steel Institute</td>
</tr>
<tr>
<td>AITC</td>
<td>American Institute of Timber Construction</td>
</tr>
<tr>
<td>Reference</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
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</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>APA</td>
<td>APA - The Engineered Wood Association</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air-Conditioning Engineers</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials International</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>DHI</td>
<td>Door and Hardware Institute</td>
</tr>
<tr>
<td>FED-STD</td>
<td>Federal Standard</td>
</tr>
<tr>
<td>FS</td>
<td>Federal Specification</td>
</tr>
<tr>
<td>ICC-ES</td>
<td>ICC Evaluation Service, Inc.</td>
</tr>
<tr>
<td>MILSPEC</td>
<td>Military Specification and Standards</td>
</tr>
<tr>
<td>NES</td>
<td>National Evaluation Service (See ICC-ES)</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NRCA</td>
<td>National Roofing Contractors Association</td>
</tr>
<tr>
<td>SMACNA</td>
<td>Sheet Metal and Air Conditioning Contractors' National Association</td>
</tr>
<tr>
<td>TCA</td>
<td>Tile Council of America, Inc.</td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratory</td>
</tr>
<tr>
<td>WI</td>
<td>Woodwork Institute</td>
</tr>
</tbody>
</table>

**PART 2 - Products (Not Used)**

**PART 3 - Execution (Not Used)**

End of Section 01420
SECTION 01500 - Temporary Facilities and Controls

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01700 "Execution Requirements."

1.2 Use Charges

A. Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner’s construction forces, Architect, testing agencies, and authorities having jurisdiction.

B. Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations. Coordinate with owner to determine point of connection.

C. Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations. Coordinate with owner to determine point of connection.

D. Submit temporary utility reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

1.3 Quality Assurance

A. Comply with NECA, NEMA, ANSI A10.6, NFPA 241 and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Comply with industry standards and applicable laws and regulations of the authorities having jurisdiction, including but not limited to:

1. Cal OSHA.
2. Building Code requirements.
3. Health and safety regulations.
4. Utility company regulations.
5. Police, Fire Department and Rescue Squad rules.

D. Refer to “Guidelines for Bid Conditions for Temporary Job Utilities and Services,” prepared jointly by AGC and ASC, for industry recommendations.

E. Contractor is responsible for providing all materials and methods necessary for temporary facilities, controls and protection that are necessary to complete the work.
1.4  **Project Conditions**

A. Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Provide barricades to protect pedestrian traffic around site.

C. Respond to complaints from Owner within 48 hours.

D. Provide immediate written RFI summarizing complaints received directly from neighbors, adjacent buildings, users or pedestrians.

E. Keep temporary services and facilities clean and neat in appearance. Maintain facilities in good operating condition until removal. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on the site.

F. Contractor is responsible for site, building and individual room security, and security to all areas of work. In the event of loss or damage, promptly restore temporary construction facilities and controls by repair or replacement at no change in the Contract Sum or Contract Time.
   1. Provide security program and facilities to protect work from unauthorized entry, vandalism, and theft.
   2. At contractor’s discretion, employ guards to protect the site after working hours.

G. Relocate temporary services and facilities as required by progress of the work.

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**PART 2 - Products**

2.1  **Materials**

A. Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended. Not all materials that may be necessary are listed in this Section.

B. Comply with Sections 02741 and 02751 for Asphalt Paving and Concrete Paving.

C. Portable Chain-Link Fencing: Minimum 2-inch, 9 Ga., galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide privacy screen in fence and gates. Contractor is responsible for realigning, relocating and reestablishing temporary fence, privacy screen, and gates as required to accommodate access, circulation and progress of work.

D. Provide 10-mil minimum polyethylene sheeting as needed to protect and screen work.

E. Provide paint as needed to comply with VOC requirements.

F. Provide sandbags as required.

G. Provide First Aid supplies. Comply with governing regulations and recommendations of the National Red Cross.
H. Provide security hardware and locks to secure the site and building. Coordinate with Owner on keying requirements and timing for change out.

I. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

J. Provide rubber hoses as necessary to serve project site.

2.2 Temporary Enclosures

A. Prefabricated occupiable units with serviceable finishes, lockable entrances, operable windows, heating and air conditioning temperature controls, and foundations adequate for normal loading.

B. Provide storage sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations. Keep materials dry at all times.

C. Single-occupant self-contained toilet units of chemical, aerated re-circulation or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

D. Provide a mobile contractor’s field office of weather-tight construction, with lighting, power, ventilation, heating and cooling to house contractor.

1. Field office shall have private office for contractor’s superintendent.
2. Field office shall have space for project meetings, with table and chairs to accommodate a minimum of 12 persons.
3. Contractor shall ensure that neither contractor’s field office nor other jobsite facilities are used for living quarters.
4. Contractor’s field office shall present neat, business-like appearance at all times, internally and externally.
5. Provide field office with, but not limited to, the following:
   a. Phone service.
   b. Electrical power.
   c. High speed internet connection.
   d. Computer, fax, telephone, furnishings, etc. for a complete functional environment.

6. Provide trailer skirting, tie-downs, and “fall-stop” seismic anchoring.
7. Provide secure doors and windows. Provide steel security bars on all windows, releasable from inside for emergency egress.
8. Provide blinds on all windows.

E. The contractor shall provide a temporary office for the IOR to be located as directed by the IOR and to be maintained until removal is authorized by the Owner. This office shall be of substantial waterproof construction with adequate natural light and ventilation by means of stock design windows. The door shall have a key type lock with dead bolt. A table satisfactory for the study of plans and two chairs shall be provided by the contractor. The contractor shall provide and pay for adequate electric lights, private local telephone service (not a pay phone) with a loud exterior bell, internet DSL service, fax machine with active line, and adequate heat and cooling for this field office until the completion of the Contract.

2.3 Equipment

A. Provide new equipment suitable for intended use.

B. Provide portable, hand-carried, UL rated fire extinguishers; with class, & extinguishing agent and in quantity & location as required by fire authority. Provide and maintain fire extinguishers in wood
construction regardless of Fire Authority requirements. Provide extinguishers for all construction areas, storage areas and enclosures, temporary offices and similar spaces.

C. Locate, place and use equipment so as not to impose excessive loads on supporting walls, floors, roofs and structures.

PART 3 - Execution

3.1 Installation, General

A. Locate temporary facilities where they will serve project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required by progress of the work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. If contractor’s materials are stockpiled in unapproved areas or creating interference or obstruction with the work of others, or if they are overloading the structure, then at the discretion of the Owner’s representative, the contractor shall be required to relocate these materials at contractor’s expense. If materials are not relocated in the specified time, the Owner reserves the right to move such materials and charge the contractor through deductive change order.

3.2 Temporary Utility Installation

A. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Provide 48 hour minimum prior notice to Owner of any utility interruptions.

B. Provide temporary utilities to remove effluent lawfully.

C. Provide water service and distribution system in sizes and pressures adequate for construction.

D. Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

E. Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

F. Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.

G. Provide weatherproof, grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations. Install temporary electric power service underground.

1. Provide properly configured, NEMA-polarized electrical outlets to prevent insertion of 100- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
2. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

3. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

H. Provide temporary telephone service in common-use facilities. Install a minimum of one (1) telephone line for each field office.

1. Provide a dedicated telephone line for each facsimile machine and computer in each field office.
2. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
3. Provide one (1) telephone line for IOR office.
4. Provide temporary electronic DSL communication service, including electronic email in each field office.
5. Provide temporary electronic DSL communication service, including electronic mail in each IOR office.

3.3 Support Facilities Installation

A. Provide construction offices, shops, and sheds; locate per construction plan. Supply and install a standalone security system which consists of, at a minimum, one electronic entry pad, three (3) motion sensors and both interior and exterior audible horns for the temporary contractor’s field office and the temporary office for the IOR.

B. Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
2. Recondition temporary use and road areas, including removing contaminated material, regrading, proofrolling, compacting, and testing.
3. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Asphalt Paving Specifications.
4. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
5. Prepare sub-grade and install sub-base and base for temporary roads and paved areas according to Section 02300 “Earthwork.”

C. Comply with traffic control requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.
3. Provide Owner and authorities having jurisdiction with a minimum 7 day notice of traffic/street closure and re-routing. Coordinate with all parties concerned on allowable and preferred closure times.
4. Provide necessary traffic control including flag person. Coordinate with requirements of jurisdictional authority for traffic control requirements.

D. Provide temporary onsite parking areas for construction personnel.

1. Do not park on public roadways unless approved by local police authorities.
2. Maintain clear access ways and parking for emergency vehicles, as required by local police and fire authorities.
3. Keep parking areas clear of construction debris, especially debris hazardous to vehicle tires.

E. Comply with requirements for drainage by authorities having jurisdiction. Maintain project site, excavations, and construction free of excess water.

1. Dispose of rainwater in a lawful manner per requirements of authorities having jurisdiction that will not result in flooding project or adjoining properties nor endanger permanent work or temporary facilities.
2. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
3. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff or stormwater from heavy rains.
4. Provide necessary temporary pumps, piping, and filters required to keep excavations dry and free of excess water.

F. Provide temporary signs that may be necessary for completion of the work. Locate temporary signs to inform public and individuals seeking entrance to project and warning signs to keep unauthorized people from entering site.

1. Provide temporary, directional signs for construction personnel and visitors.
2. Maintain and touchup signs so they are legible at all times.

G. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Locate per construction plan.

H. Provide facilities necessary for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

I. Provide street sweeping and clean-up to keep adjacent public ways, streets and sidewalks clean. Clean-up all trash, waste, material and soil debris trails on public ways and streets as a result of the work. Trucks hauling soil, gravel and other loose material must be wetted and covered.

3.4 Security and Protection Facilities Installation

A. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

B. Comply with Owner’s requirements for using and protecting walk-ways, loading docks, building entries and other building facilities during selective demolition operations.

C. Install temporary fencing located outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

D. Before construction operations begin, furnish and install secure site enclosure fence in a manner that will prevent unauthorized people and animals from easily entering site.

1. Enclose entire project area to accommodate construction operations including office, storage and staging areas and personnel parking.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.
3. Provide lockable entrances to work areas to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
4. Provide lockable gates in sizes and locations necessary to complete the work.
5. Contractor shall provide security fencing around complete perimeter of each work area, for the duration of the Contract.
6. Location(s) of security fencing shall be subject to review and approval of Owner prior to erection of fencing. Location of security fencing shall be determined at pre-installation meeting.
7. Time of removal of fencing shall be subject to approval by Owner.

E. Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting. Provide structurally adequate, protective, covered walkway for passage of individuals where hazardous operations may occur overhead.

F. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures. Coordinate temporary enclosures with material installation, ventilation, drying and curing procedures.

G. Provide and maintain temporary fire protection facilities of types needed to protect against reasonably predictable fire losses until permanent fire-protection needs are supplied by approved operating facilities. Comply with California Fire Code during all phases of the work.

1. Maintain, at a minimum, the work in conditions to minimize fire hazards and provide adequate fire protection devices, such as suitable fire extinguishers, blankets, warning signs and storage containers.
2. During hazardous construction activities, maintain fire protection devices immediately available for use at the location of such activities.
3. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above. Locate fire extinguishers where convenient and effective for their intended purpose.
4. Store combustible materials in containers in fire-safe locations.
5. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
6. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
7. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
8. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

H. Provide guard rails along tops of embankments and excavations. Along public walkways and areas accessible by the public, adjoining excavations, provide guardrails in addition to fencing.

1. Guardrails shall be substantially and durably constructed of timber, firmly anchored by posts embedded in concrete, and complying with Code requirements for temporary barriers.
2. Guardrails shall comply with dimensional requirements and accommodate loads as prescribed by Code for permanent guardrails.
3. Provide guardrails at horizontal openings and deck edges.

3.5 Pollution Controls
A. Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces, public ways and areas.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition began.

D. Erosion and sedimentation control provisions shall meet or exceed minimum requirements of authorities having jurisdiction. Contractor shall design and provide system to prevent siltation of adjacent property as required by governing authorities having jurisdiction.

1. Implement erosion and sedimentation control provisions prior to commencing site clearing, grading, backfilling and compacting and other construction activities which will expose soil to erosion and potential for sediment-laden runoff.
2. Ensure that sediment-laden water does not enter drainage systems.
3. Maintain erosion and sedimentation control provisions until Substantial Completion review is completed for landscaping, or sooner if approved by authorities having jurisdiction.
4. Implementation, maintenance, replacement and additions to erosion and sedimentation control provisions shall solely be the responsibility of the contractor. As construction progresses and seasonal conditions dictate, more erosion and sedimentation controls may be required. If so, contractor shall provide additional provisions over and above minimum requirements as necessary.

E. Grade site and other work areas to drain:

1. Provide temporary drainage ditches and diversion measures as necessary to protect construction.
2. Provide erosion control measures as necessary and as required by authorities having jurisdiction. Comply with local water quality control requirements, as applicable.

F. Surface runoff and other waters may be encountered at various times during construction. Contractor, by signing the Contract, acknowledges that risks arising from surface runoff and other waters have been investigated and considered, and Contract Sum and Contract Time include all costs associated with runoff control.

1. It shall be responsibility of contractor to protect work from detrimental effects of all waters encountered.
2. It shall be responsibility of contractor to protect work from detrimental effects of runoff.
3. Should damage to the work due to surface or other water occur prior to acceptance of the work by the Owner, contractor shall repair or replace work at no change in Contract Time or Contract Sum.

3.6 Operation, Termination, and Removal

A. Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintain facilities in good operating condition until removal. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
D. At earliest feasible time, when acceptable to Owner, change over from use of temporary utilities to use of permanent service.

E. Unless Owner requires temporary facilities and measures be maintained longer; remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of contractor. Owner reserves right to take possession of project identification signs.

2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements.

3. Remove temporary underground utility installations to a depth of 2-feet. Backfill, compact and re-grade site as necessary to restore areas or to prepare for indicated paving and landscaping.

3.7 Temporary Utilities Beyond Scheduled Contract Completion Date

A. Electrical power connections and use of building services, such as lighting are imperative for occupancy and operation of facilities by Owner, even if work under the Contract is not completed.

B. If permanent utility services are not complete one week prior to commencement of classes, contractor or contractor’s bonding company shall obtain, connect, monitor, maintain and pay for electrical generators to provide necessary electrical power to power building facilities for Owner’s uses.

1. Electrical generators shall remain operational until permanent power service is completed and operational, in accordance with the Contract Documents and as approved by authorities having jurisdiction, at no additional cost to Owner.

2. No additional time will be added to the Contract Time for electrical generators and related components.

3. Contractor shall be responsible for obtaining and paying for permits from authorities having jurisdiction, for operation of electrical generators.

4. Contractor shall remove temporary power service, including generators, the cost of which shall be included in the Contract Sum. No additional time or cost will be added to the Contract for removal of electrical generators and related components.

End of Section 01500
SECTION 01524 - Construction Waste Management

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:
   1. Section 01732 “Selective Demolition.”
   2. Section 02230 “Site Clearing.”

1.2 Definitions

A. Construction Waste: Materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the work.

1.3 Performance

A. Field verify dimensions indicated on construction documents before confirming product orders or proceeding with work, to minimize waste due to excessive materials.

1.4 Quality Assurance

A. Comply with hauling and disposal regulations of authorities having jurisdiction.


C. Comply with the California Code of Regulations Title 14, Section 187000 et seq.

1.5 Delivery, Storage and Handling

A. Coordinate the schedule of product deliveries in order to minimize site storage time and potential damage to stored materials and to minimize waste due to excessive materials handling and misapplication.

B. Set aside and protect misdelivered and substandard products and materials and return to supplier for credit.
C. Store products and materials in a manner to prevent damage and contamination.

PART 2 - Products (Not Used)

PART 3 - Execution

3.1 Salvaging Demolition Items

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Store and protect items in a secure area until installation.
3. Protect items from damage during transport.
4. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
5. Keep items dry at all times.

B. Salvaged Items for Owner's Use:

1. Clean salvaged items.
2. Store and protect items in a secure area until delivery to Owner.
3. Transport items to Owner's storage area designated by Owner.
4. Protect items from damage during transport.
5. Keep items dry at all times.

3.2 Disposal of Waste

A. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from project site and legally dispose in a landfill acceptable to authorities having jurisdiction.

1. Do not allow landfill waste materials that are to be disposed of to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces, site areas, and routes of transport.
3. Transport landfill waste materials off Owner's property and legally dispose of them.

B. Do not burn waste materials.

End of Section 01524
SECTION 01600 - Product Requirements

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01770 “Closeout Procedures.”

1.2 Definitions

A. Products: Items purchased for incorporating into the work. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

B. Substitutions: Changes in products, materials, equipment, designs and construction from those required by the Contract Documents.

C. Specific manufacturer names or product names noted as “or equal” “equal to” or similar language are referenced to establish minimum basis of design requirements for quality, properties, function, dimensions, instances, performance, physical properties, appearance, and other characteristics for the purposes of evaluating comparable products by other manufacturers. Comply with submittal requirements for submitting comparable products on an ‘or equal’ basis. Listed manufacturers are provided as a suggested guide and are not intended to limit contractor’s choices of manufacturers. Contractor is responsible for providing products that meet the basis of design in every respect and providing required submittal information to demonstrate compliance.

D. Descriptive, performance, and reference standard requirements in the Specifications establish “salient characteristics” of products. Where Specifications require compliance with performance requirements, provide products that comply with or exceed requirements, and are recommended by the manufacturer for application indicated. General overall performance of a product is implied where the product is specified for a specific application. Manufacturer’s recommendations may be contained in product literature, or by manufacturer’s certification of performance.

1.3 Substitution Request Documentation

A. Submit three copies of each substitution request to the Architect for consideration. Identify product, materials, fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Type written form, acceptable to Architect, showing substitution request identification number, summarize and list each item of content. Include statement on form that contractor has reviewed contents of substitution request and has found it to be in compliance in all respects, and is equivalent to or superior with the requirements of the Contract Documents, including material and installation requirements. Contractor shall sign form stating that the substitution is suited for and can perform the purpose or application of the specified product indicated or specified in the Contract Documents.

2. Show compliance with Contract requirements by providing the following information, as applicable:
a. Statement indicating why specified product or method cannot be provided.
b. Include a detailed description, in written or graphic form as appropriate, indicating all changes or modifications needed to other elements of the work and to construction to be performed by the Owner and by others under separate contracts with Owner, that will be necessary if the proposed substitution is accepted.
c. Detailed side-by-side comparison of significant qualities of proposed substitution with those of the work specified. Mark clearly affected Specification section for any differences from item specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect and specific features and requirements indicated.
d. Provide complete product data, including drawings and descriptions of products and fabrication and installation procedures.
e. Provide samples, where applicable.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports acceptable to authority handling jurisdiction, evidencing compliance with building code in effect for project.
i. Detailed evaluation of Construction Schedule showing effect on the overall Contract Time and individual tasks. If specified products are not available from manufacturer within scheduled construction time, provide written statement on manufacturer’s letterhead stating lack of availability or timing of delivery.
j. Cost information including a proposal of change, if any, in the Contract Sum. Substitution requests shall include detailed cost data, including a proposal for the net change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
m. Provide same warranty for substitution as for specified product. Warranty shall meet or exceed that for specified product.
n. Substitution requests shall include a signed waiver by the contractor for change in the Contract Time or Contract Sum because of the following:
   1. Substitution failed to perform adequately.
   2. Substitution required changes in other elements of the work.
   3. Substitution caused problems in interfacing with other elements of the work.
   4. Substitution was determined to be unacceptable by authorities having jurisdiction.
o. If, in the opinion of the Architect, the substitution request is incomplete or has insufficient data to enable a full and thorough review of the intended substitution, the substitution may be summarily refused and determined to be unacceptable.

3. If necessary, Architect will request additional information or documentation for evaluation of a request for substitution. Architect will notify contractor of acceptance or rejection of proposed substitution. Use product specified if Architect cannot make a decision on use of a proposed substitution. Contractor is responsible for providing all necessary information including information requested by Architect to justify substitution.

4. Do not install substituted products without acceptance from Owner and Architect.
5. Do not resubmit rejected substitutions.
6. Use of approved substitution does not alleviate contractor from complying with requirements of Contract Documents.
7. Allow for all substitution request and review times in construction schedule. Additional schedule time will not be granted for substitutions.
1.4 Quality Assurance

A. If contractor is given option of selecting between two or more products for use on project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

B. Do not incorporate products that are provided prior to satisfactorily passing testing requirements.

C. Provide all products required for a complete and proper installation, even if not specifically indicated, at no additional cost to Owner.

D. Where inter-related, multiple components are required for a complete system provide components that are completely compatible and satisfy required warranties. Provide only one brand, kind or make of product from a single source for each purpose throughout work.

E. For all products referred to in singular number, provide the quantity needed to complete the work.

F. Contractor is responsible for providing products that are equal to or better than the level of quality and basis of design specified at no additional cost to Owner.

G. Consider all project requirements when obtaining and supplying products, whether shown in the Contract Documents or not. Consider existing surrounding, neighboring uses, occupancies and functions within 1,000 feet of site before ordering products and materials. Make adjustments to order and provide complete installations compatible with neighboring uses at no additional cost to Owner.

H. Where Contract requires color, texture, or sheen selections to match specific samples or existing conditions, provide colors, textures, and sheen at no additional cost to Owner to match samples or existing conditions specified, even if the use of custom colors, formulations or procedures is necessary to obtain a match to the satisfaction of Architect.

1.5 Product Delivery, Storage, and Handling

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions. Exercise special care to protect products that are sensitive to light, UV exposure, heat or moisture.

B. Delivery and Handling:

1. Schedule and sequence deliveries with construction schedule to minimize storage time at project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to project site in undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Promptly inspect products on delivery and prior to installation to ensure compliance with Contract Documents and to ensure that products are undamaged and properly protected. Immediately reject and return all products and materials that do not comply.
5. Provide adequate equipment and personnel to properly handle, move and store products and materials to prevent damage, disfiguring or soiling.
6. Pay all demurrage costs associated with delay of deliveries.

C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer’s written instructions.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, and UV exposure, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage. Comply with MSDS.
7. Protect stored products from damage and liquids from freezing.
8. Do not bring products to site until conditions match those recommended in writing by manufacturer.
9. Do not store products labeled flammable or toxic within the building.
10. Store products in a secure enclosure.
11. When approved by Owner, and when site constraints do not permit on-site storage, materials may be stored off site in a bonded warehouse approved by Owner, at no additional cost to Owner.
13. Arrange storage area to allow access for inspections and for logical sequencing with construction.
14. Periodically inspect to ensure products are undamaged, and are maintained under required conditions.
15. Products damaged by improper storage or protection shall be removed and replaced with new products at no change in Contract Sum or Contract Time.
16. Store moisture-sensitive products above ground, under cover in a weathertight enclosure or covered with an impervious sheet covering. Provide adequate ventilation to avoid condensation.
17. For exterior storage of fabricated products, place products on raised blocks, pallets or other supports, above ground and in a manner to not create ponding or misdirection of runoff. Place on sloped supports above ground.

1.6 Product Warranties

A. Warranties specified shall be in addition to manufacturer’s standard warranties or implied warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve contractor of obligations under requirements of the Contract Documents.

B. Warranty shall be an agreement to repair or replace, without cost and undue hardship to Owner, work performed under the Contract which is found to be defective during the warranty period. Repairs and replacements due to improper maintenance or operation, or due to normal wear, usage and weathering are excluded from warranty requirements unless otherwise specified.

C. Manufacturer’s disclaimers and limitations on product warranties do not relieve the contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the contractor.

D. It is specifically required and acknowledged by this contractor that warranty periods on all work materials, equipment and products commences from date of project completion. Therefore, start up of equipment and/or the use of equipment during construction shall not be construed as the qualifier for warranty period start.

E. For equipment and products or components thereof bearing a manufacturer’s warranty or guarantee that extends for a period of time beyond the contractor’s warranty guarantee, so state in the warranty or guarantee.
F. When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.

G. When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

H. Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefitted from use of the work through a portion of its anticipated useful service life.

I. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the contractor during the construction period, submit properly executed warranties to the Owner within fifteen days of completion of that designated portion of the work.

J. Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such duties, obligations, rights, or remedies.

K. The Owner reserves the right to reject warranties and not limit selections to products with warranties not in conflict with requirements of the Contract Documents.

L. The Owner reserves the right to refuse to accept work for the project where a special warranty, certificate, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

M. When a warranty is required to be executed by the contractor, or the contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner for approval prior to final execution.

N. Where special warranties are required prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval as submittal. Even when not specifically indicated as a submittal within a specific Specification Section.

O. All warranties shall indicate the Owner as beneficiary.

P. Submit 3 copies of all warranties, guarantees and bonds. Prepare written documents utilizing the appropriate form, ready for execution by the appropriate party(s). Submit a draft to Owner for approval prior to final execution.

1. Prepare warranty letter on appropriate letterhead, addressed to Owner.
2. Warranty letters shall be signed by all responsible parties and by contractor in every case, with modifications only as approved in advance by Owner to suit the conditions pertaining to the warranty or guarantee.
3. Signatures shall be by person authorized to sign warranties, on behalf of entity providing such warranty. All signatures on warrants shall be original wet ink and shall be notarized.

Q. Unless otherwise directed or specified, commencement date of warranty periods shall be the date of project completion.
1. Warranties for Work Accepted in Advance of Date of Project Completion: When a designated system, equipment, component parts or other portion of the work is completed and occupied or put to beneficial use by Owner, by separate agreement with contractor prior to project completion date, submit properly executed warranties to Owner within ten days of completion of that designated portion of the work. List date of commencement of warranty period as the date of project completion.

2. Warranties for Work Not Accepted as of Date of Project Completion: Submit documents within ten days after acceptance, listing date of acceptance as beginning of warranty.

R. Unless otherwise specified or prescribed by law, warranty and guarantee periods shall be not less than the warranty period required by the Contract Documents but in no case less than one year from the date established for Substantial Completion.

PART 2 - Products

2.1 Product Selection

A. Provide products that comply with the Contract Documents that are undamaged and new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, safety devices, and other items needed for a complete installation and intended use and effect.

2. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

3. ‘Or Equal’ basis-of-design: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product that is equal in all respects. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.

4. Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

5. Where Specifications include the phrase "as selected from manufacturer's colors, patterns, and textures" or a similar phrase, Architect will select color, pattern, density, or texture from manufacturer’s full range of products that includes standard, premium, and custom items.

6. Where a conflict exists between two different products specified to the same piece of work, provide the more expensive product at no additional cost or time to Contract.

7. Where conflict exists between product requirements indicated and jurisdictional requirements provide for more expensive option at no additional cost or time to Contract.

8. Where conflict exists between specifications and drawings for product requirements provide more expensive product at no additional cost or time to Contract.

9. Where products are accompanied by the term “match sample,” sample to be matched is Architect’s.

10. If available, and unless custom products or nonstandard options are specified, provide standard products and types that have been produced and used successfully in similar situations on other projects.

11. All products, other than commodity products prescribed by Code, shall have a current ICBO Evaluation Service (ICBO ES) Research Report or CABO National Evaluation Report (NER).

12. To the fullest extent possible, provide products of the same kind from a single source. Products required to be supplied in quantity shall be the same products and interchangeable throughout the work. When options are specified for the selection of any of two or more products, the products selected shall be compatible with products previously selected.

13. Except for required Code-compliance labels and operating and safety instructions, locate nameplates on inconspicuous, accessible surfaces. Do not attach manufacturer’s identifying nameplates or trademarks on surfaces exposed to view in occupied spaces or to the exterior.
14. Provide a permanent nameplate on each item of service-connected or power-operated equipment. Nameplates shall contain identifying information and essential operating data such as but not limited to, the following example:

1. Name of manufacturer.
2. Name of product.
3. Model and serial number.
5. Operating and power characteristics.
6. Labels of tested compliance with Codes and Standards.

15. For each item of service-connected or power-operated equipment, provide operating and safety instructions, permanently affixed and of durable construction, with legible machine lettering. Comply with all applicable requirements of authorities having jurisdiction and listing agencies.

2.2 Substitution Process Requirements

A. Architect will consider requests for substitution if received within 15 (fifteen) days prior to Notice to Proceed. Requests received after that time may or may not be considered at discretion of Architect.

B. Architect will consider any contractor's request for substitution only when all of the following conditions are satisfied:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume, such as Architect’s evaluation and redesign efforts.
2. Substitutions must clearly be in Owner’s best interest because of quality, cost, performance, conformity to code requirements or availability.
3. Requested substitution does not require extensive revisions to the Contract Documents.
4. Requested substitution is consistent with the Contract Documents and will produce indicated results.
5. Substitution request is timely, fully documented and properly submitted.
6. Requested substitution will not adversely affect contractor's construction schedule.
7. Requested substitution has received necessary approvals of authorities having jurisdiction.
8. Requested substitution is compatible with other portions of the work.
9. Requested substitution has been coordinated by contractor with other portions of the work.
10. Requested substitution provides specified warranties.
11. Substitutions shall, without exception, be manufactured of same basic materials and comply with or exceed all Specification requirements of dimension, weight, operating weight, function, structure and appearance, without deviation.

C. Contractor is responsible for providing all information necessary and requested to justify substitution request.

D. Substitution request review and processing time shall in no way justify additional time or cost to the Contract.

E. Denial of substitution requests shall in no way justify additional time or cost to the Contract.

F. Approved substitutions shall in no way relieve contractor from requirements and responsibilities of the Contract Documents.
G. Contractor assumes all costs associated with installing approved substitutions. Contractor is responsible for all professional fees, including Architect and Engineers, for time required for review and any redesign services associated with substitutions and for costs associated with re-approval by Government Authority.

1. Should a contractor-proposed substitution or alternative sequence or method of construction require revision of the Contract Drawings or Specifications, including revisions for the purposes of determining feasibility, scope or cost, or revisions for the purpose of obtaining review and approval by authorities having jurisdiction, revisions will be made by Architect or other consultant of Owner who is the responsible design professional, as approved in advance by Owner.

2. Services of Architect or other responsible design professional for document revisions, researching and reporting on proposed substitutions or alternative sequence and method of construction shall be paid by contractor.

3. Costs of services by Architect or other responsible design professional of the Owner shall be paid on a time and materials basis, based on current hourly fee schedules, with reproduction, long distance telephone, travel costs and shipping costs reimbursable at cost plus 15% mark-up for handling and billing.

4. Such fees shall be paid whether or not the proposed substitution or alternative sequence or method of construction is ultimately accepted by Owner and a Change Order is executed.

5. If necessary, fees will be paid through deductive change order to Contract.

H. Substitutions on the basis of unavailability of a product must be accompanied by letter on manufacturer’s letterhead stating lack of availability, and that contractor could not have known of unavailability at the time of bid. Substitution requests based on unavailable product that do not include required letter or language will be denied and contractor shall be responsible for providing products of equal to or better than quality level indicated at no additional cost or time to Contract.

I. Substitutions will not be considered if they are indicated or implied on shop drawing, product data or sample submittals. All requests for substitution shall be by separate written request from contractor. Contractor shall utilize Substitution Request Form provided by Owner.

J. Substitutions will not be considered if acceptance will require substantial revision of the Contract Documents or will substantially change the intent of the design, in the opinion of the Architect. The intent of the design shall include functional performance and aesthetic qualities.

K. Substitutions will not be considered when they are indicated or implied on submittals. All proposed substitutions must be requested with separate written requests.

L. The contractor’s submittal and Architect’s acceptance of Shop Drawings, Product Data or Samples that indicate construction not complying with the Contract Documents, does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

M. In case materials are substituted and installed without proper authorization, contractor shall remove such materials and install those specified at his own expense.

N. Contractor shall determine effect approved substitutions will have on other portions of work and so inform his subcontractors and employees of these effects.

PART 3 - Execution (Not Used)

End of Section 01600
SECTION 01700 - Execution Requirements

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:
   1. Section 01310 "Project Management and Coordination."
   2. Section 01330 "Submittal Procedures."
   3. Section 01731 "Cutting and Patching."
   4. Section 01770 "Closeout Procedures."

1.2 Submittals

A. Submit certificate signed by licensed land surveyor certifying that location and elevation of improvements comply with requirements.

B. Submit 2 (two) copies of a final property survey showing the project layout work performed and record survey data, including paving locations and elevations, and utility locations and elevations.

   1. Survey and layout data shall be reviewed by contractor prior to submission for Owner’s filing. Contractor shall sign each submittal copy certifying that:
      a. Field measurements have been determined and verified.
      b. Field construction criteria have been verified.
      c. Conformance with Drawings and Specifications requirements is confirmed.

   2. Indicate clearly on survey and layout data whether the dimensions and coordinates are in compliance with Contract requirements. Contractor shall note clearly and sign each submittal certifying that reported date “conforms” to contract requirements.

   3. Identify all deviations from requirements of Drawings and Specifications.

1.3 Quality Assurance

A. Obtain the services of a licensed land surveyor who is legally qualified to practice in jurisdiction where project is located and who is experienced in providing land-surveying services of the kind required.

B. Provide installers and workers practicing the best methods known to each particular trade. Use adequate numbers of skilled, experienced workers who are adequately trained and completely familiar with the requirements and methods needed for completion of the work. Provide adequate number of supervisors and foremen for each piece of work. Foreman and supervisors shall be skilled and experienced in the particular work they are managing.

C. Where required by warranty requirements provide approved fabricators and installers. Provide written evidence of such approval on manufacturer’s letterhead from manufacturer.

D. Comply with all Cal/OSHA required safety measures required for fulfillment of the Contract and work.
E. The utility locator contractor shall have on staff a California licensed civil engineer experienced in this type of work and experienced project managers and utility survey technicians.

PART 2 - Products

2.1 Equipment

A. The site utility location equipment and instrumentation shall include and not necessarily be limited to the following: Electromagnetic utility locator instruments, radio frequency transmitters, antenna receivers, pipeline and cable detectors, ground penetrating radar, and other such devices necessary to accurately identify and locate the various types and sizes of the underground site utilities existing on campus. The existing underground site utilities on campus include and are not necessarily limited to steel pipe, iron pipe, copper pipe, concrete carriers, transite pipe, PVC pipe/conduit, vitreous clay pipe and electrical and telecommunications duct banks both with and without concrete encasement.

PART 3 - Execution

3.1 Examination

A. The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of electrical systems and other construction affecting the work. Before construction, investigate and verify the location and points of connection of utility services.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services and other necessary utilities.

2. Provide a graphic survey showing location and depth of existing utilities and points of connection prepared by a land surveyor licensed to practice in project location.

B. The existence and location of construction indicated as existing is not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the work.

C. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations with photos, video and notations.

1. If requirements of Contract Documents create conditions which are detrimental to performance of the work provide an RFI to the Architect. Provide for most expensive option at no additional cost or time to Contract.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers, curing compounds and other finishes and coatings. Assure that moisture content of substrate is within acceptable written recommended limits of manufacturer of material to be applied to substrate.

3. Examine and verify rough-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.

4. Examine and verify suitability of walls, floors, roofs and other elements to accept application and installation of products and systems.

5. Verify that substrate conditions do not negate required warranties. Review substrate conditions with material manufacturers and obtain written statement on manufacturer’s letterhead that substrate conditions satisfy warranty requirements.

6. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the work indicates contractor’s acceptance of surfaces and conditions.
D. Investigate and document all existing uses, occupancies, and functions of neighboring properties within 1,000 feet of project site. Verify that products and systems are fully compatible with surrounding uses.

E. Survey Control and Reference Points: Contractor shall locate and protect survey control and reference points. Control datum for survey shall be as indicated on Civil Drawings.
   1. Comply with the current requirements for the “Preservation of Survey Monumentation Compliance” of the “Business and Professions Code.” Prior to construction, monuments shall be referenced in the field and “Corner Records” shall be prepared for filing in the Office of the County Surveyor. These shall be performed prior to filing of the Notice of Completion of the work.
   2. Comply with requirements of authorities having jurisdiction for survey monumentation preservation on capital improvement projects where monumentation points are present.
   3. Contractor shall be responsible for preparing and submitting proper documentation to the Office of the County Surveyor in compliance with authorities having jurisdiction.
   4. Project finalization, Notice of Completion and release of retainage shall be contingent upon obtaining documentation from contractor’s project surveyor or engineer that monuments have been set or restored and that Corner Records have been filed with and to the satisfaction of the County Surveyor.
   5. All costs and actions necessary for compliance with current regulations shall be included in the Contract Sum and Contract Time.

3.2 Preparation

A. Prepare and furnish information that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with utility companies and authorities having jurisdiction. Obtain necessary approvals and permits for work in public right of way.

B. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Owner, in writing, not less than 5 days in advance of proposed utility interruptions. Indicate length in hours for scheduled interruption.
   2. Do not proceed with utility interruptions without Owner’s written permission.
   3. Schedule utility outages and shutdowns to nights, weekends, holidays or times and dates acceptable to Owner, as directed by Owner.
      a. Time and duration of outages and shutdowns shall not hinder Owner’s normal activities except as authorized in writing by Owner.
      b. Contractor shall provide temporary utilities to occupied facilities and adjacent properties when utilities must be interrupted for more than two hours, during normal occupied hours.
      c. Power interruptions beyond the authorized time shall be subject to liquidated damages.

C. Take field measurements as required to fit the work properly. Recheck measurements before installing each product. Where portions of the work are indicated to fit to other construction, verify dimensions of other construction by field measurements before order and fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the work. Immediately upon discovery of conflicts submit written RFI to Architect for clarification.

D. Verify space requirements and dimensions of items shown diagrammatically on Drawings prior to order and fabrication. Immediately upon discovery of conflicts submit written RFI to Architect for clarification.
E. Review field conditions with Contract Documents. Immediately on discovery of the need for clarification of the Contract Documents; submit a written request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

F. The utility locator shall mark out all utilities in the proposed alignment and cover a width of 20 feet. Identify on asphalt or PCC surfaces, with color-coding, painted identification of utilities.

G. Exploratory Excavations (Pilot Trench): The contractor shall excavate a “pilot trench” as indicated before excavation of a full width utility trench. Contractor shall exercise extreme caution to prevent damage to surrounding surface features and utilities.

H. If any structure or utility is damaged, take immediate action to ensure the safety of persons and property and immediately effect necessary repairs.

3.3 Construction Layout

A. Before proceeding to lay out any work, become familiar with existing and proposed conditions, verify project dimensions and locations shown on Drawings, in relation to the property survey, existing benchmarks and working points and lines established for the project. If discrepancies are discovered, provide an RFI to the Architect immediately.

B. Engage a licensed surveyor to lay out the work using accepted surveying practices.

1. Assume responsibility for furnishing all permanent and temporary stakes, pins, markers, strings, and grade markings as required to clearly mark the outlines and horizontal and to implement the work of layout and staking. Make all minor field adjustments if so directed by the Architect at no extra cost to the Owner.

2. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of project.

3. Establish dimensions within tolerances indicated. Do not scale Drawings or use means to measure or obtain required dimensions from electronic drawings, use written dimensions only.

4. Inform installers of lines and levels to which they must comply.

5. Check the location, level and plumb, of every major element as the work progresses.

6. Notify Architect with written RFI immediately when deviations from required lines and levels exceed allowable tolerances.

7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Locate and lay out all vertical and horizontal controls of all site improvements, including pavement and edges, planting areas, pavement scoring lines, retaining walls, water features, curbs, gutters, grading, fill and topsoil placement, utility slopes, and invert elevations, and all other site features indicated.

D. Continuously maintain a log at project site of layout control work as work progresses. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for review by Owner, Architect and Inspector.

3.4 Field Engineering

A. Locate permanent benchmarks, control points, and similar reference points before beginning the work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points. Report in writing lost or destroyed permanent benchmarks or control points promptly.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points. Maintain necessary stakes and pins throughout project.
3. Contractor shall excavate all holes necessary for line and grade stakes.

B. Upon completion of rough grading, survey all graded areas and elevations along property lines to establish that elevations are correct and within acceptable tolerances for paving, construction and finish grading.

C. On completion of each element of work requiring field-engineering services, prepare and provide a certified survey showing dimensions, locations, angles, and elevations of construction and site work.

D. Establish a minimum of two permanent monuments on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record drawings.

1. In accordance with Professional Land Surveyor Act, Section 8772, any monument set by a licensed land surveyor or registered civil engineer to mark or reference a point on a property or land line shall be permanently and visibly marked or tagged with the certificate number of the surveyor or civil engineer setting it, each number preceded by the letters “L.S.” or “R.C.E.” respectively, as the case may be, or, if the monument is set by a public agency, it shall be marked with the name of the agency and the political subdivision it serves.
2. Nothing in this Section shall prevent the inclusion of other information on the tag which will assist in the tracing or location of survey records which relate to the tagged monument.
3. Centerline ties filed with the County Surveyor will be checked for compliance with this law.

E. Prepare a final property survey showing significant features for project. Include on the survey a certification, signed by licensed surveyor, that principal metes, bounds, lines, and levels of project are accurately positioned as shown on the survey. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

3.5 Installation

A. Locate the work and components of the work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, conduit and wiring in finished areas, unless otherwise indicated.
4. Maintain minimum headroom clearance required by building authority in spaces without a ceiling.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated. Install products in a manner that satisfies warranty requirements and is recommended in writing by manufacturer.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion. Prepare substrates and surfaces as recommended in writing by manufacturer. Perform work when existing and forecasted weather conditions are within limits recommended in writing by manufacturer. Comply with manufacturer’s written temperature and humidity requirements. Allow materials to adjust to ambient conditions as recommended by manufacturer in writing prior to installation.
D. Conduct construction operations so no part of the work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Do not use tools or equipment that produce harmful noise levels to building occupants.

F. Obtain and distribute templates to parties involved for factory prepared and field installed work. Check Shop Drawings and coordinate with other work to confirm that adequate provisions are made for locating and installing fabricated products.

G. Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the work.
   1. Where mounting heights are not indicated, submit an RFI to verify mounting heights.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to project site in time for installation.

H. Make joints of uniform width. Where joint locations in exposed work are not indicated, submit RFI to verify joint location. Measure, layout, plan, cut and fit exposed connections together to form hairline joints.

I. After sub-contractors and trades have completed portions of work, inspect work and adjacent areas and make any adjustments necessary.

J. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

K. Use products, cleaners, and installation materials that are not considered hazardous, and are fully compatible with installed products and finishes.

L. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

3.6 Progress Cleaning

A. Clean project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   2. Do not hold waste materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80° F.
   3. Containerize unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations. Do not store unsanitary or unsafe waste inside building.
   5. Do not store flammable, unsafe, unsanitary or odorous waste in a manner or location that would adversely affect pedestrians, building occupants, adjacent buildings and occupants, and properties.

B. Maintain project site free of loose, scattered waste materials and debris.

C. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.
1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the work, vacuum the entire work area, as needed.

D. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Remove debris from concealed spaces before enclosing the space.

F. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Burying or burning waste materials on-site is not permitted. Washing waste materials down sewers or into waterways is not permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

K. Clean sidewalks, driveways and streets frequently to maintain public thoroughfares free of dust, debris and other contaminants.

L. Keep parking areas clear of construction debris, especially debris hazardous to vehicle tires.

M. Keep site accessways, parking areas and building access and exit facilities clear of mud.

N. At a minimum, clean work areas daily.

3.7 **Starting and Adjusting**

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Coordinate schedule for start-up of various equipment and systems.

C. Notify Inspector and owner prior to start-up of each item.

D. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence or other conditions which may cause damage.

E. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

F. Verify wiring and support components for equipment are complete and tested.
G. Execute start-up under supervision of responsible manufacturer’s representative and/or contractor’s personnel in accordance with manufacturers’ instructions.

H. When specified in individual Specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, and check equipment or system installation prior to start-up and to supervise placing equipment or system operation.

I. Submit a written report to the Owner, Architect and Inspector that equipment or system has been properly installed and is functioning correctly.

J. Notify and assist Owner and Inspector for coordination of all utility hook-ups prior to hook-up.

K. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

L. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.8 Protection of Installed Construction

A. Provide final protection and maintain conditions that ensure installed work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 Correction of The Work

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Section 01731 "Cutting and Patching." Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace entire area of finish materials that are exposed to view if damaged surfaces cannot be repaired without visible evidence of repair.

D. Remove and replace damaged substrates and base structure if damaged by construction operations.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

End of Section 01700
SECTION 01731 - Cutting and Patching

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary conditions and other Division 1 Specification Sections, apply to this Section.

1.2 Quality Assurance

A. Provide a proposal describing procedures at least 10 (ten) days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Describe anticipated results. Include changes to structural elements and operating components as well as changes in building’s appearance and other significant visual elements.
3. List products to be used and firms or entities that will perform the work.
4. Indicate when cutting and patching will be performed.
5. List utility services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work. Do not cut and patch structural elements without approval from Architect.

B. Do not cut, drill or notch structural elements unless detailed on structural drawings or without prior written authorization from the Structural Engineer.

C. Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance, decreased operational life or safety, or voids required or implied warranties. Such items include, but are not limited to:

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-protection systems.
4. Control systems.
5. Communication systems.
6. Electrical wiring systems.
7. Water, moisture, or vapor barriers.
8. Membranes and flashings.
9. Equipment supports.
10. Piping, ductwork, vessels, and equipment.
11. Noise- and vibration-control elements and systems.

D. Do not cut and patch elements or related components in a manner that results in reducing their load carrying capacity, capacity to perform as intended, causes increased maintenance or decreased operational life or safety, or voids required or implied warranties.
E. Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

F. Sloppy, careless or avoidable cutting and patching will not be tolerated and work affected will be replaced at no cost or time to Contract. An aesthetically pleasing overall appearance of finished surfaces is a requirement of this project. Make necessary preparations, and use recommended techniques with great care to ensure that all finished surfaces are acceptable to Architect. Architect will be the sole judge of visual acceptability.

G. Before cutting and patching, meet at project site with parties involved. Review areas of proposed cutting and patching, coordinate procedures and resolve conflicts before proceeding.

H. Contractor shall do all cutting, fitting, or patching of work as required to make its several parts come together properly and fit to receive or be received by work of other contractors shown upon, or reasonably implied by, the Drawings and Specifications for the completed structure as Architect may direct. In addition, the contractor shall do the following:

1. Uncover work to provide for installing, inspecting, or both, of ill-timed work.
2. Remove and replace work not conforming to requirements of the Contract Documents.
3. Remove and replace defective work.

I. All cost caused by defective or ill-timed work shall be borne by contractor.

J. 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 consent of Architect.

K. Should conditions of the work, or schedule, indicate a required change of materials or methods for cutting and patching, notify the Architect and Owner and secure written permission.

L. Provide firms and workers with a minimum of 10 years experience in cutting and patching the types of substrates and systems on this project.

1.3 Warranty

A. Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials approved in writing by manufacturer’s of affected materials, so as not to void warranties. Architect will be the sole judge of visual acceptability.

PART 2 - Products

2.1 Materials

A. Comply with requirements specified in other Sections.

B. Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials. Architect will be sole judge of visual acceptability.

C. Provide necessary framing, blocking and support of openings cut into existing decks, walls, roofs and other substrates. Provide support in same depths as adjacent framing.
D. At Portland cement concrete paving, use concrete mixed with maximum 3/8-inch aggregate and a minimum 3000 psi 28-day compressive strength. Provide dowels to existing paving and reinforce new paving with minimum No. 3 reinforcing steel bars at 16-inches on center each way. Welded wire fabric reinforcement will not be acceptable.

E. Restore and compact areas trenched, disturbed or damaged. Provide sod or seeded planting mix, to match existing lawn or grass area.

F. Match existing products and finishes. Confirm colors, patterns and textures with Architect. Custom cut new materials to fit and to match joint patterns with existing materials.

G. Custom cut new ceramic tile and acoustical panel materials to size to match existing construction.

PART 3 - Execution

3.1 Examination

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed. After uncovering work, examine conditions affecting installation of new work.

1. Before cutting and patching, verify compatibility with and suitability of patching materials and substrates, including compatibility with in-place finishes and primers.

2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected. Proceeding with cutting and patching work constitutes acceptance of substrate and conditions by contractor.

3.2 Preparation

A. Provide temporary support of work to be cut.

B. Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of project that might be exposed during cutting and patching operations.

C. Avoid interfering with use of adjoining areas or interrupting the free passage to adjoining areas.

D. Where existing utility services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

E. Locate all utilities prior to any cutting or excavation.

3.3 Performance

A. Employ adequate number of skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cut new and existing in-place materials by sawing, drilling, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Cut or drill from the exposed or finished side into concealed surfaces.
3. Cut concrete and masonry using a cutting machine, such as an abrasive saw or a diamond-core drill for smooth edges. Do not cut corners. Core drill holes through concrete and masonry. Pneumatic tools will not be allowed without prior approval.
4. For excavating and backfilling comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
5. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

C. Patch new and existing in-place materials by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Test and inspect patched areas after completion to demonstrate integrity of installation.
2. Restore substrates and exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Provide an even surface of uniform finish, color, texture, and appearance to match adjoining surfaces. Remove finishes and replace with new materials, if necessary as determined by Architect, to achieve uniform color and appearance.
4. Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Patch exterior components in a manner that restores enclosure to a weathertight condition.
6. Where patching occurs on a painted surface, apply primer and intermediate coats over patched area. Apply final coat over entire surface containing patch. Provide additional finish coats over entire surface until patch blends with adjacent surface, at no additional cost to Owner.
7. Restore substrates and finishes with products that comply with product Sections of the Specification.
8. Fit work neat and tight allowing for expansion and contraction.
9. Adjoin new finishes to in-place exposed structure, pipes, ducts, conduit, and other penetrations through surfaces, in a manner that is consistent with requirements of the Contract Documents.
10. For continuous surfaces, refinish to nearest intersection or natural break.
11. For an assembly, refinish entire unit.
12. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with material in accordance with Contract Documents to full thickness of the penetrated element.

D. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

End of Section 01731
SECTION 01732 - Selective Demolition

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01322 “Photographic Documentation.”
2. Section 01500 “Temporary Facilities and Controls.”
3. Section 01524 “Construction Waste Management.”
4. Section 02230 “Site Clearing.”

1.2 Definitions

A. Remove: Detach items from existing construction in their entirety as required for new construction and legally dispose of them off-site.

B. Salvage: Detach items from existing construction and deliver them to Owner.

C. Remove and Reinstall: Detach items from existing construction in their entirety as required for new construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and will remain functional.

E. Abandon: Existing items of construction that are to be disconnected, shutdown and left in place.

1.3 Quality Assurance

A. Provide the services of an experienced firm that has specialized in demolition work similar in material and extent to that indicated for this project.

B. Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction. Comply with all applicable storm water, erosion and air quality regulations.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Conduct pre-demolition meeting at project site. Review methods and procedures related to selective demolition. Issue meeting minutes.

E. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

1.4 Project Conditions

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical. Owner assumes no responsibility for condition of areas to be selectively demolished.

1. Before selective demolition, Owner will remove the following items:
   a. None

C. Compare existing conditions with Construction Documents before proceeding with selective demolition. Immediately provide written RFI to Architect for resolution of any conflicts found.

D. It is not expected that hazardous materials are present within the existing conditions.

1. If hazardous materials are encountered or suspected, do not disturb; immediately notify Owner in writing. Owner will remove hazardous materials under a separate contract.

E. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations. Re-route utilities if necessary to maintain service, without disruption of service, at no additional cost or time to Contract. Maintain fire-protection facilities in service during selective demolition operations.

F. Verify depth and locations of existing utilities to remain prior to start of selective demolition.

G. Storage or sale of removed items or materials on-site will not be permitted.

1.5 Warranty

A. Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - Products

2.1 Repair Materials

A. Provide necessary framing, blocking and support of openings cut into existing decks, walls, roofs and other substrates. Provide support in same depths as adjacent framing.

B. Use repair materials identical to existing materials.

   1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
   2. Use materials whose installed performances equal or surpass that of existing materials.

C. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - Execution

3.1 Examination

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
C. Inventory and record the condition of items to be removed and reinstalled and items to be salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written RFI to Architect immediately.

E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations. If such condition exists submit written RFI to Architect immediately.

F. Record existing conditions by use of measured drawings, preconstruction photographs and templates. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final work, make permanent record of measurements, materials, assembly, construction, connection and interface with other materials, as needed to make exact reproduction.

G. Perform surveys as the work progresses to detect hazards resulting from selective demolition activities.

H. Proceeding with selective demolition work constitutes acceptance of substrate conditions by contractor.

3.2 Mechanical/Electrical Systems

A. Maintain systems and components indicated to remain and protect them against damage during selective demolition operations.

B. Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies and campus operations.
2. If systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary systems that bypass area of selective demolition and that maintain continuity of systems to other parts of building.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.3 Preparation

A. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.

B. Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
3. Protect existing site improvements, appurtenances, and landscaping to remain.

C. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

2. Provide continuous access to Powerhouse and Electrical Equipment Enclosure for San Diego Gas and Electric and Campus Operations.

3. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

4. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.

5. Cover and protect furniture, furnishings, and equipment that have not been removed.

D. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished. Strengthen or add supports when required to adequately support surrounding work during progress of selective demolition.

E. Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

3.4 Selective Demolition

A. Demolish and remove existing construction only to the extent indicated and as required by new construction. Use methods required to complete the work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations. Maintain adequate ventilation when using cutting torches.

4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

5. Dispose of demolished items and materials promptly. Remove decayed, infested, corroding or otherwise dangerous unsuitable materials promptly.

6. Remove structural framing members and lower to ground by method suitable to avoid free fall and prevent ground impact and dust generation.

B. Removed and Salvaged Items:

1. Clean and repair items.

2. Pack or crate items. Identify contents of containers.

3. Store items in a secure area until delivery to Owner.

4. Transport items to Owner's storage area designated by Owner.

5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Protect construction indicated to remain against damage and soiling during selective demolition.

3.5 Selective Demolition Procedures for Specific Materials

A. Demolish concrete in sections. Cleanly cut concrete full depth at junctures with construction to remain and at regular intervals, then remove concrete between saw cuts.

B. Demolish masonry in small sections. Cleanly cut masonry at junctures with construction to remain, and then remove masonry between saw cuts.

C. Saw-cut perimeter of AC paving areas to be demolished, then break up and remove.

3.6 Disposal of Demolished Materials

A. Remove demolished materials from project site. Comply with requirements of Section 01524, “Construction Waste Management.”

B. Do not burn demolished materials.

C. Do not discard or bury demolished materials.

3.7 Cleaning

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

End of Section 01732
SECTION 01782 - Operation and Maintenance Data

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01770 “Closeout Procedures.”

1.2 Copies

A. Provide [three (3)] draft copies of each Operation and Maintenance Manual in final form at least fifteen (15) days before Substantial Completion. Architect will return one copy with comments. Correct or modify each manual to comply with Architect’s comments. Submit [three (3)] copies of each corrected manual to Owner prior to final acceptance of the work by Owner.

1.3 Quality Assurance

A. Preparation of data shall be done by persons:

1. Trained and experienced in maintenance and operation of the described products.
2. Familiar with requirements of this Section.
3. Skilled in technical writing to the extent required to communicate essential data.

1.4 Coordination

A. Where Operation and Maintenance documentation includes information on installations by more than one factory authorized service representative, assemble and coordinate information furnished by multiple representatives.

PART 2 - Products

2.1 Manuals

A. Prepare and format data in the form of an instruction manual. Organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents. Provide 1 manual for each building.

B. Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.
C. List each product included in manual in a Table of Contents, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual. If manual requires multiple binders provide master table of contents in each binder and clearly identify each binder with a sequential number.

D. Organize sets into manageable size. Arrange contents alphabetically by system, subsystem, and equipment. Assemble instructions for each subsystem, equipment, and component of one system into a single binder; do not break information on an item or system into multiple binders.

1. Provide heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents; sized to hold 8-1/2-by-11 inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets on inside covers to hold folded oversize sheets. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets. Indicate total number of volumes. Provide a Master List of all manuals showing number and Title.

2. Provide heavy-paper dividers with tabs for each section. Use printed labels on each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Provide transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.

4. Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, neatly fold drawings to same size as text pages and use as foldouts.

   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations. Key drawings for reference by labeling envelopes.

E. Within each tabbed division, include data as published by the product manufacturer. All data shall be neatly typewritten. Strike-through information on printed literature not applicable.

F. Supplement the manufacturer’s printed data with neatly typewritten text and professionally drafted diagrams as necessary to suit the particular installation for the project and to fully explain operation and maintenance procedures. Provide logical sequence of instructions for each procedure.

G. Provide drawings and photos as needed to supplement operation and maintenance data to illustrate configurations and relationships of component parts of equipment and systems, and to show control and flow diagrams, as applicable. Do not use Project Record Documents as maintenance drawings.

H. Provide additional data as specified in individual product Specification Sections.

2.2 Emergency Manuals

A. Organize manual into a separate section for type of emergency, emergency instructions, emergency procedures and emergency contact information.

B. For each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire
2. Water Leak
3. Power Failure
4. Equipment Failure

C. Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Include stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 Operation Manuals

A. Provide operation data, equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements. Organize into a binder by system, subsystem and equipment.

B. Include the following:
   1. Product name and model number.
   2. Manufacturer's name.
   3. Equipment identification with serial number of each component.
   4. Equipment function.
   5. Operating characteristics.
   6. Limiting conditions.
   7. Performance curves.
   8. Engineering data and tests.
   9. Complete nomenclature and number of replacement parts.

C. Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Describe the sequence of operation, and diagram controls as installed.

E. Diagram piping as installed, and identify color-coding where required for identification.

2.4 Product Maintenance Manual

A. Organize manual into a separate section for each product, applied materials, and finishes. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below. Include catalog numbers, size composition, color, texture and sheen designations. Provide information for re-ordering products, materials and finishes.

B. List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer and supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Include product data for moisture protection and weather-exposed products listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Include the following, as applicable:
   1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
5. Reordering information for specially manufactured products.

E. Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

F. Include lists of materials and local sources of materials and related services.

G. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 Systems and Equipment Maintenance Manual

A. For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. List each system, subsystem, and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Provide manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance identification, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment.

D. Include test and inspection instructions, troubleshooting guide, disassembly instructions, adjusting instructions and demonstration and training DVD, if available, that detail essential maintenance procedures. Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services. Provide parts list, illustrations, assembly drawings and diagrams as necessary for service and maintenance. Include complete nomenclature and catalog numbers for consumable and replacement parts. Provide list of spare parts, current prices, and recommended quantities to be maintained in stock by the Owner or operator.

G. Include copies of maintenance agreements with name and telephone number of service agent.

H. Provide contractor's coordination drawings, with piping diagrams as installed. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams. Color code diagrams as necessary for clarity.

I. Include test reports, as applicable and as specified in individual product Specification Sections.

J. Provide electrical service characteristics of panelboard circuit directories, controls and communications.
K. Include diagrams of wiring as installed, with color coding as necessary for clarity.

L. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds, including procedures to follow and required notifications for warranty claims.

PART 3 - Execution

3.1 Manual Preparation

A. Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the work. If data includes more than one item in a tabular format, highlight each applicable item and identify using appropriate references from the Contract Documents. Identify data applicable to the work and delete references to information not applicable.

B. Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation. Do not use Contract Documents or Record Documents as part of operation and maintenance manuals.

End of Section 01782
SECTION 01770 - Closeout Procedures

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01290 “Payment Procedures.”
2. Section 01322 “Photographic Documentation.”
3. Section 01781 “Project Record Documents.”
4. Section 01782 “Operation and Maintenance Data.”
5. Section 01820 “Demonstration and Training.”

1.2 Closeout Meeting

A. Owner, Architect and contractor will attend a meeting at the project site to review Contract closeout procedures and to review items to be completed and corrected. This meeting shall be scheduled not earlier than 14 days prior to the date anticipated for Substantial Completion review.

1.3 Substantial Completion

A. When contractor determines that the work is complete in accordance with the Contract documents, contractor shall submit to Architect and Inspector of Record written certification that the Contract Documents have been reviewed, the work has been inspected by the contractor and by authorities having jurisdiction, and the facility is ready for Substantial Completion review. Before requesting review for determining date of Substantial Completion assure the following items are complete. In request for review list any items that are incomplete.

1. Prepare a list of items to be completed and corrected in a punch list format.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
10. Terminate and remove temporary facilities from project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover for utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

Closeout Procedures
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15. Certificate of occupancy.

B. After review, Architect shall prepare and distribute a typewritten, comprehensive list of items to be completed and corrected (punch list) to make the work ready for acceptance by the Owner.

1. The punch list shall include all items to be completed or corrected prior to the contractor’s application for final payment.

C. On receipt of written request for review, Architect will either proceed with review or notify contractor of unfulfilled requirements.

D. Architect will prepare the Certificate of Substantial Completion or will notify contractor of items that must be completed or corrected before certificate will be issued.

1. Request re-review when incomplete items are corrected.
2. If additional site visits are required by the Architect, Architect’s consultants and other design professionals under separate contracts with Owner, to review completion and correction of the work, the costs of additional visits shall be reimbursed to the Owner by the contractor by deducting such costs from the Final Payment.

1.4 Final Completion

A. Before requesting final review for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment with releases.
2. Submit certified Substantial Completion punch list of items to be completed or corrected stating that each item has been completed or otherwise resolved.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
6. Submit signed inspection reports.

B. Submit a written request for final review for acceptance. On receipt of request, Architect will either proceed with final review or notify contractor of unfulfilled requirements.

C. Owner will execute a Final Completion Certificate after review or will notify contractor of work that must be completed or corrected before certificate will be executed. Request re-review when the incomplete items are corrected.

1.5 Warranties

A. Assemble and organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Prior to submission, verify that documents are in proper form and contain all required information and are properly signed.
2. Organize warranty and guarantee documents into an orderly sequence based on the Table of Contents of the Project Manual.
3. Include Table of Contents for binder, neatly typed, following order and section numbers and titles as used in the Project Manual.
4. When operating and maintenance data manuals are required for warranted construction, include additional copies of each required warranty and guarantee in each required manual. Coordinate with requirements specified in Section 01782 “Operation and Maintenance Data.”
5. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

6. Provide heavy paper dividers with tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

7. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," project name, name and address of contractor.

8. Submit fully executed copies of warranties, guarantees and bonds within ten days of date of Notice of Completion.

B. Provide 3 (three) copies of extended warranties at time of Substantial Completion.

1.6 Final Payment

A. After completion of all items listed for completion and correction, after submission of all documents and products and after final cleaning; submit final Application for Payment, identifying total adjusted Contract Sum, previous payments and sum remaining due. Payment will not be made until the following are accomplished:

1. All project record documents have been transferred and accepted by Owner.
2. All extra materials and maintenance stock have been transferred and received by Owner.
3. All warranty documents and operation and maintenance data have been received and accepted by Owner.
4. All liens have been released or bonded by contractor.
5. Contractor’s surety has consented to final payment.

1.7 Post-Construction Inspection

A. In accepting final payment, contractor shall agree to perform a post-construction inspection with representatives of the Owner, and if authorized by Owner, the responsible design professionals, to review performance of the completed work and to determine what, if any, corrections shall be performed by contractor in compliance with the contractor’s warranty, as described in the Conditions of the Contract.

B. No later than 300 days after the date of Substantial Completion, after occupancy and use of the facility by the Owner, at days and times as directed by Owner.

C. Inspection Activities:

1. Contractor shall inspect, test and adjust the work, noting defects and corrective actions to be taken.
2. Contractor shall instruct Owner’s operating personnel in operational requirements needed to maintain correct appearance and function of the facility.

D. Contractor shall prepare and submit to Owner, a typewritten report to identify deficiencies and corrective actions taken. Post-construction inspection report shall note when corrective actions are unable to restore defects in the work to compliance with the requirements of the Drawings, Specifications and manufacturer’s criteria.

E. Corrections shall be governed by provisions of the Conditions of the Contract.

PART 2 - Products

2.1 Materials
A. Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

B. Provide close out documents in appropriately sized 3-ring binder with transparent vinyl insert sleeve on both front cover and binding edge. Use multiple binders if necessary.

PART 3 - Execution

3.1 Final Cleaning

A. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Turn over project in a “like new” condition.

B. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire project or for a portion of project:
   a. Clean project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances. Remove and dispose all mock-ups that are not incorporated into work.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits. Wash all paved areas.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from project site.
   e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
   f. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration. Do not paint over name plates, labels, and similar identification items on parts and equipment.
   g. Clean building accessories, including toilet partitions, fire extinguisher cabinets, lockers and toilet accessories, all plumbing fixtures and all lighting fixture lenses and trim.
   h. Clean and buff all metalwork, to be free of soiling and fingerprints. Mirror finished metalwork shall be buffed to high luster.
   i. Thoroughly sweep and wet mop floors in enclosed spaces. At parking areas and ramps, sweep and hose off floor surface.
   j. Thoroughly sweep and mop tile flooring. Comply with specific requirements in manufacturer’s tile and installation materials.
   k. Thoroughly sweep all resilient flooring. Damp wash all resilient flooring. Comply with specific requirements in applicable resilient flooring Sections, and notes of the Drawings.
   l. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from all visible interior and exterior surfaces.
   m. Leave project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from project site and dispose of lawfully.

D. Turn over all keys to Owner.
E. Turn over additional materials and products as required by Contract Documents.

F. On occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

End of Section 01770
SECTION 01781 - Project Record Documents

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01782 “Operation and Maintenance Data.”

1.2 Submittals

A. Submit [one (1)] set of corrected Record Drawings and [one (1)] set of marked-up Record Prints.

B. Submit [one (1)] PDF copy of each Record Drawing whether or not changes and additional information were recorded.

C. Submit [one (1)] PDF copy of Project's Specifications, including addenda and contract modifications.

D. Submit [one (1)] PDF copy of each Product Data submittal.

PART 2 - Products

2.1 Record Drawings

A. Maintain one set of black-line on white record prints of the Contract Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown on the current Contract Documents. Designate a single individual for life of project to record information into Drawings and Specifications. Maintain that individual for life of project. Do not change record keeper without approval from Owner.

2. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

3. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations. Record information continuously as work progresses.

4. Accurately record information in an understandable drawing technique. Use straight edge and circle template to make lines with neat block lettering to record note. Colors used shall be clearly reproducible through electronic scanning process into PDF format.

5. Mark record sets with erasable, colored pencil. Use colors to distinguish between changes for different categories of the work at same location. Establish legend to clearly define colors.

6. Note construction field change directive numbers, alternate numbers, change order numbers, and similar identification, where applicable.

7. Make changes to the documents caused by RFI responses with RFI designation.

8. Mark new information that is important to Owner, but was not shown on Contract Drawings or Shop Drawings.

9. Legibly and to scale, mark a reproducible set of Contract Drawings to record actual construction, including:

a. Measured depths of foundations and footings encountered, measured in relation to finish first floor datum.
b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent ground improvements.

c. Field changes of dimension and detail.

d. Details not on original Contract Drawings: Application of copies of details produced and provided by Architect during construction will be accepted.

B. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location on every sheet of Record Set whether all Drawings contain record marks or not.

1. Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets. Logically number added sheets to fit established numbering and sequence.

2. Scan each Record Drawing whether it contains marks or not and create a PDF of each drawing.

3. Provide the following identification on each Record Drawing:

   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of contractor.
   e. Name of individual who prepared record information.

2.2 Record Specifications

A. Mark Specifications to indicate the actual product or method of installation that varies from that indicated in Contract Documents, addenda, and contract modifications. Same individual marking Record Drawings shall mark Record Specifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Record the name of manufacturer, supplier, installer, catalog numbers and other information necessary to provide a record of selections made.

4. Note related change orders.

5. Indicate product substitutions and alternates utilized.

2.3 Record Submittal Data

A. Mark Submittal Data to indicate the actual product installation where installation varies substantially from that indicated in submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, Record Specifications and Record Drawings where applicable.

2.4 Miscellaneous Record Information

A. Assemble miscellaneous records required in connection with actual performance of the work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1. RFIs and RFI Log.

2. FCDs and FCD Log.
3. Change Orders.

PART 3 - EXECUTION

3.1 Recording and Maintenance

A. Maintain one copy of each Record Document during the construction period for. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of project.

B. Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, in a fire resistant location, protected from deterioration and loss. Provide access to Project Record Documents for Owner’s and Architect's reference during normal working hours.

End of Section 01781
SECTION 01820 - Demonstration and Training

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

   1. Section 01310 “Project Management and Coordination.”

1.2 Instruction Information

A. Provide instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors’ names for each training module. Include learning objective and outline for each training module.

1.3 Quality Assurance

A. Provide factory-authorized service representatives, complying with requirements in Section 01400 “Quality Requirements,” experienced in operation and maintenance procedures and training.

PART 2 - PRODUCTS

2.1 Instruction Program

A. Develop an instruction program for each system and equipment item.

B. Develop learning objectives and teaching outlines. Include a description of specific skills and knowledge that participant is expected to master. Include instruction for each system based on the following:

   1. Operation.
   2. Documentation.
   3. Emergencies.
   5. Use operations and maintenance manuals as instruction guide.
   6. Adjustments.
   7. Troubleshooting.
   8. Maintenance.
   9. Repairs.

C. Prepare and insert additional data in operation and maintenance manuals when need for such date becomes apparent during construction.

PART 3 - Execution

3.1 Instruction

A. Engage a qualified facilitator to prepare instruction program, to coordinate instructors, and to coordinate between contractor and Owner for number of participants, instruction times, and location.
B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Provide instruction at mutually agreed on times. Schedule training with Owner with at least 7 (seven) days' advance notice.

D. Assemble, produce and provide all training materials, visual aids and tools.

3.2 Demonstration and Training

A. Demonstrate operation and maintenance of products to Owner's personnel within seven (7) calendar days of Substantial Completion and prior to occupancy.

B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance and shutdown of each item of equipment at agreed-upon times at equipment location.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

E. Record demonstration and training. Record each training session separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice. At beginning of each training session, record each chart containing learning objective and lesson outline.

F. Restore systems and equipment to condition existing before demonstration.

End of Section 01820
SECTION 02230 - Site Clearing

PART 1 - General

1.1 Related Documents
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this Section.

1.2 Material Ownership
A. Except for stripped topsoil or other materials indicated to remain Owner's property, waste materials shall become Contractor's property and shall be removed from Project site. Benefits from recycled material belong to Owner.

1.3 Project Conditions
A. Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
B. Carefully remove items indicated to be salvaged and store on Owner's premises where directed by Owner.
C. Notify utility locator service in Project location and thoroughly investigate location and depth of all off-site and on-site utilities and utility structures before site clearing.
D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - Products

2.1 Soil Materials
A. Requirements for satisfactory soil materials are specified in Section 02300 "Earthwork." Obtain soil materials off-site when satisfactory soil materials are not available on-site. Imported soil must be free of organics and debris.

PART 3 - Execution

3.1 Preparation
A. Protect and maintain benchmarks and survey control points from disturbance during clearing operations.
B. Locate and clearly flag vegetation to remain.
C. Protect existing site improvements to remain from damage during clearing operations. Restore damaged improvements to their original condition, as acceptable to Architect.
D. Verify depths of existing utilities to remain prior to start of site clearing operations.

3.2 Temporary Erosion and Sedimentation Control

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 Utilities

A. Locate and identify all utilities above and below grades in areas of work prior to starting work.

B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed. Arrange with utility companies and campus representative for utility shut off.

C. Do not interrupt utilities serving occupied facilities unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

   1. Notify Owner not less than 48 hours in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Owner's written permission.

3.4 Clearing and Grubbing

A. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is required. Place fill material in horizontal layers not exceeding loose depth of 6 (six) inches and compact each layer to a density equal to adjacent original soil.

3.5 Topsoil Stripping

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3.6 Site Improvements

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction. Fill holes and depressions with satisfactory soil material unless further excavation or earthwork is required. Place fill material and compact per Sec. 02300 and approved grading plan.

3.7 Disposal

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.
SECTION 02300 - Earthwork

PART 1 - General

1.1 Related Documents
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 Definitions
A. Backfill: Soil material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.
B. Base Course: Course placed between the subbase course and asphalt concrete paving.
C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe or conduit.
D. Borrow or Import Soil: Soil imported from off-site for use as fill or backfill.
E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water and also provides a break in horizontal hydrostatic pressure at vertical wall applications.
F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
G. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
H. Fill: Soil material used to raise existing grades.
I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

1.3 Quality Assurance
A. Provide the services of a licensed Geotechnical Engineer. The responsible party will have the following duties:
   1. Observe the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished subgrade, observe proof rolling and delineate areas requiring additional excavation.
   2. Observe the compaction of scarified soils.
   3. Perform visual observation to evaluate the suitability of on-site and imported soils for fill placement;
4. Observe and probe foundation bearing materials to confirm that suitable bearing materials are present at the design grades.
5. Observe the backfill of utility trenches.
6. Observe the construction of the subgrade and base for exterior paving.

B. Contractor shall conduct a preconstruction meeting prior to starting work of this Section, to develop a program or quality control of the work.

1.4 Submittals
A. Submit name of source for import material before it is brought to site. Import material shall be free of toxic substances.

1.5 Project Conditions
A. Do not interrupt utilities serving adjacent occupied facilities unless permitted in writing by Owner and then only after providing temporary utility services. Verify depth and location of existing utilities to remain prior to start of earthwork operations. Notify Owner at least 48 hours prior to any interruption of utility services.

B. Provide and maintain protection to retain earth banks and to protect adjoining grades and structures from caving, sliding, erosion, or other damage. Provide suitable protection against all bodily injury. Construct all bulkheads and shoring to requirements of State and Local Codes and Regulations. Shore vertical banks or slope banks back as required for stability and safety. Erect temporary barricades located at least 5-feet away from the top of slopes, and provide temporary berms as required to prevent slope erosion from water.

PART 2 - Products

2.1 Soil Materials
A. Provide borrow soil materials only when sufficient satisfactory soil materials are not available from excavations.

B. Provide soils materials free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

D. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

E. Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

F. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
G. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.2 Accessories

A. Provide acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility.

B. Utility ID tape.

PART 3 - Execution

3.1 Preparation

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect and maintain required erosion, sedimentation and dust controls during earthwork operations.

C. Provide dewatering as required to keep trenches, excavation for footings and sub-slats areas free of water.

3.2 Excavation

A. Conduct trenching and excavation operations with regards to the following:

1. Pursuant to State Labor Code, the contractor shall include in his base bid all costs incident to the provision of adequate sheeting, shoring, bracing, or equivalent method for the protection of life or limb, which shall conform to applicable Federal and State safety orders.

2. Before beginning any excavation five feet or more in depth, the contractor shall submit to building authority 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. The proposed plan shall comply with the standards established by the State of California Construction Safety Orders and the California Building Code. If the detailed plan varies from such shoring system standards, it shall be prepared by a registered structural engineer whose name and registration number shall be indicated on the drawing.

3. Neither the review or approval by building authority of any plan showing the design of shoring, bracing, sloping, or other provisions of worker protection, shall relieve the contractor from his obligation to comply with Construction Safety Order Standards and CBC for the design and construction of such protective work, and the contractor shall indemnify the Owner and the Architect from any and all claims, liability, costs, actions, and causes of action arising out of or related to the failure of such protective systems. The contractor shall defend the Owner, its officers, employees, and agents and the Architect and Architect’s consultants in any litigation or proceeding brought with respect to the failure of such protective systems.

B. Excavate to required subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for solid rock excavation and removal, boulder removal or removal of obstructions.
3.3 **Excavation For Walks And Pavements**

A. Overexcavate and compact surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.4 **Excavation For Utility Trenches**

A. Excavate trenches to indicated gradients, lines, depths, and elevations. Allow for any required bedding course.

B. Excavate trenches to uniform widths to provide required clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom. Shape trench bottoms to provide uniform bearing and support of pipes and conduit.

3.5 **Subgrade Inspection**

A. Proof-roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as required by field conditions, without additional compensation.

3.6 **Unauthorized Excavation**

A. Fill unauthorized excavation under foundations or wall footings as required by field conditions.

3.7 **Storage Of Soil Materials**

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3.8 **Utility Trench Backfill**

A. Place backfill on subgrades free of mud, debris and water.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill utility trenches and compact as required per approved set of drawings

D. Place and compact final backfill of satisfactory soil to final subgrade elevation.

E. Install warning tape directly above utilities, per the following table:

<table>
<thead>
<tr>
<th>Utility Depth</th>
<th>Tape Layer 1</th>
<th>Tape Layer 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>24” or less</td>
<td>12” above utility</td>
<td>- -</td>
</tr>
<tr>
<td>&gt; 24” &lt; 36”</td>
<td>12” above utility</td>
<td>- -</td>
</tr>
</tbody>
</table>
3.9 **Soil Fill**

A. Compact the fill material as shown on the plans.

B. Place and compact fill material in layers not to exceed 6” to required elevations.

1. Under grass and planted areas, use satisfactory soil material as shown on the plans.
2. Under walks and pavements, use satisfactory soil material as shown on the plans.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.10 **Soil Moisture Control**

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.11 **Compaction of Backfills and Fills**

A. Place backfill and fill soil materials in layers not exceeding 6”.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to densities shown on the plans.

3.12 **Grading**

A. Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Finish subgrade inside building lines to a tolerance of ½ inch when tested with a 10-foot straightedge in any direction.

3.13 **Subbase and Base Courses**

A. Place subbase and base course on subgrades free of mud, water and debris.
3.14   Drainage Course

A.   Place drainage course on subgrades free of mud, water and debris.

3.15   Protection

A.   Protect newly graded areas from traffic, and erosion. Keep free of trash and debris.

B.   Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C.   Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing, to meet required finish grades. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.16   Disposal of Surplus and Waste Materials

A.   Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose off of Owner’s property.

END OF SECTION 02300
SECTION 02630 – Storm Drainage System

PART 1 - General

1.1 Section Includes

A. Storm drainage piping, fitting, and accessories.
B. Connection of site storm drainage system to point of disposal.
C. Catch basins.
D. Site surface drainage.
E. Force Main storm drain station.

1.2 References

A. ASTM D 2564 – Solvent Cements for Poly Vinyl Chloride (PVC) Plastic Pipe and Fittings
D. ASTM D 3034 - Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings.
E. AWWA C105 - Standard for Polyethylene Encasement for Ductile-Iron Piping for Water and other Liquids.

1.3 Regulatory Requirements

A. Conform to applicable code for materials and installation of the Work of this Section.

1.4 Submittals

A. Submit Product Data under provisions of Section 01330.
B. Submit manufacturer’s product data.
C. Submit Manufacturer’s installations under provisions of Section 01330.

1.5 Project Record Documents

A. Submit documents under provisions of Section 0 1700.
B. Accurately record location of pipe runs, connections, catch basins, manholes, cleanouts and invert elevations.
C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
PART 2 - Products

2.1 Storm Drainage Pipe Materials
   A. Polyvinyl Chloride Pipe (PVC): ASTM D 3034, SDR35 minimum, bell and spigot style; solvent cement joints conforming to ASTM D 2564.

2.2 Pipe Accessories
   A. Fittings: Same material as pipe, molded or formed to suit pipe size and cut design, in required "T", bends, elbows, cleanouts, reducers traps, and other configurations required.

2.3 Pipe Identification
   A. Plastic Underground Warning Tapes: Polyethylene plastic tape, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION – STORM DRAIN SEWER SERVICE BURIED BELOW."
   B. Metallic-Lined Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION - STORM DRAIN SEWER SERVICE BURIED BELOW."

2.4 Catch Basins
   A. Christy catch basins and grates as documented in the drawings.

2.5 Force Main Lift Station
   A. Zoeller Pump Co. pumps and accessories as documented in the drawings.

2.6 Outfalls
   A. Cast-in-place reinforced concrete of type specified in section 03300.
   B. Provide gravity discharge basin as indicated in the drawings

2.7 Fill Material
   A. Sand: Type specified in Section 02300.

PART 3 - Execution

3.1 Examination
   A. Verify that much cut is ready to receive work and excavations, dimensions, and elevations are as indicated.
   B. Beginning of installation means acceptance of existing conditions.
3.2 Preparation
   A. Hand trim excavations to required elevations. Correct over excavation with fill material of sand.
   B. Remove large stones or other hard matter which could damage drainage tile or impede consistent backfilling or compaction.

3.3 Installation - Pipe
   A. Extend storm drain system to connect to site inlets of sizes and in locations indicated.
   B. Solvent cement PVC pipe and fittings in accordance with ASTM D 2355 and install piping in accordance with ASTM D 2321.
   C. Place pipe on minimum four inch deep bed of sand.
   D. Install warning tape during back-filling of trench for underground sanitary storm drain piping. Locate 8 inches below finished grade directly over piping.
   E. Lay pipe to slope gradient noted on Drawings with maximum variation from true slope of 1/8 inch in 10 feet.
   F. Install coarse sand at sides and over top of pipe. Provide top cover to minimum compacted thickness of 12 inches.
   G. Place sand in maximum 6 inch lift, consolidating each lift.
   H. Increase compaction of each successive lift. Refer to Section 02300 for compaction requirements. Do not displace or damage pipe when compacting.
   I. Connect to point of disposal.

3.4 Installation – Catch Basins.
   A. Install catch basins in accordance with manufacturer’s instructions at locations indicated on the drawings.
   B. Install catch basins and grates level to proper elevation.
   C. Recess grates 1/8-inch below finish grade.
   D. Install and tape grates before placing concrete or backfill.

3.5 Installation – Lift Station
   A. Install pumps and accessories per manufacturer’s instructions and drawings.

3.6 Field Quality Control
   A. Field inspection will be performed under provisions of Section 01410.
   B. Clear interior of piping and structures of dirt and other debris as work progresses.
3.7 Protection

A. Protect finished installation under provisions of Section 01600.

B. Protect pipe from damage or displacement until backfilling operation is in progress.

C. Protect installed catch basins and grates from damage during construction.

END OF SECTION 02630
SECTION 02741 - Asphaltic Concrete Paving

PART 1 - General

1.1 Section Includes

A. Weed Killer.
B. Prepared Base.
C. Asphaltic Concrete Paving.
D. Surface Sealer.

1.2 References

B. TAI (The Asphalt Institute) - Manual Series No. 2 (MS-2).

1.3 Quality Assurance

A. Perform work in accordance with Standard Specifications for Public Works Construction.
B. Mixing Plant: Conform to State of California standards.
C. Obtain materials from same source throughout.

1.4 Regulatory Requirements

A. Conform to applicable County standards for paving work on public property.

1.5 Submittals

A. Submit proposed mix design for each class of mix for review prior to commencement work under provisions of Section 01330.
B. Submit Product Data for under provisions of Section 01330.
C. Submit Manufacturer's instructions for under provisions of Section 01330.

1.6 Environmental Requirements

A. Do not place asphalt when base surface temperature is less than forty (40) degrees F.
B. Perform asphalt paving waste management techniques as defined in Chapter 4 of the Construction Activity Handbook published by the Storm Water Quality Task Force.
PART 2 - Products

2.1 Aggregates

A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.

B. Granular Base Aggregate: In accordance with Section 200-2.2 of Standard Specifications for Public Works Construction.

C. Granular Base Aggregate Maximum Size:
   2. Other Base Courses: 3/4 inches.

D. Aggregate For Asphaltic Concrete Paving: In accordance with Section 203.622, “Standard Specifications for Public Works Construction.”

2.2 Weed Killer

A. Dry, free-flowing, dust-free chemical compound, non-flammable, not creating a fire hazard when applied in accordance with the manufacturer's recommendations, soluble in water, and capable of being spread dry or in solution.

B. Weed Killer Products:
   3. Casoron 50W: Uniroyal Chemical Co., Inc.

2.3 Bituminous Materials

A. Provide materials of the class, grade or type indicated on the Drawings, conforming to relevant provisions of Section 203 – Bituminous material of the Standard Specifications for Public Works Construction

PART 3 - Execution

3.1 Inspection

A. Verify compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Beginning of installation means acceptance of substrate.

3.2 Preparation

A. Apply weed killer to entire area to be paved. Follow manufacturer’s application directions.
3.3 Placement of Granular Base Course

A. Spread granular base material to compacted thickness shown on the Drawings. Compact to ninety (90) percent in non-traffic areas and to ninety-five (95) percent in traffic areas.

B. Thickness Tolerance: Minus 0.0 inch to plus 0.5 inch.

C. Smoothness Tolerance: 3/8 inch in ten (10) feet.

D. Moisture Content: Only the amount needed to achieve the specified compaction.

3.4 Placement of Asphaltic Concrete Finished Paving

A. Remove all loose materials from compacted base.

B. Apply tack coat at the rate of 0.05 to 0.25 gallon per sq yd to all areas to be paced.

C. Apply tack coat at the rate of 0.05 to 0.10 gallon per sq yd to all existing pavement, curbs, gutters, manholes, and the like immediately before asphalt concrete is placed.

D. Adjust frames and covers, if so required, to meet final grades.

E. Spreading Asphaltic Concrete Materials:
   1. Spread material in a manner which requires the least handling.
   2. Spread asphalt concrete to thickness shown on Drawings.
   3. Where thickness of asphalt concrete paving will be three (3) inches or less, spread in one (1) layer.
   4. Where thickness of asphalt concrete paving will be more than three (3) inches, spread in two (2) layers. Surface course shall be a minimum of one (1) inch thick.

F. Rolling:
   1. After material has been spread to proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown.
   2. Roll in at least two (2) directions until no roller marks are visible.

3.5 Tolerances

A. Free from birdbaths.

B. Flatness: Maximum variation of 1/8 inch in six (6) feet.

C. Compacted Thickness: Within 1/4 inch.

D. Variation from True Elevation: Within 1/2 inch.

3.6 Re-Paving

A. Where existing pavement is cut, removed, or disturbed, existing pavement shall be saw cut.

B. Where excavations are twelve (12) inches or less in width, existing pavement to be cut twelve (12) inches greater in length and width of excavation.
C. Where excavations are greater than twelve (12) inches in width, existing pavement to be cut twenty-four (24) inches greater in length and width of excavation.

D. Where existing pavement being cut is to be overlay, pavement cutting outside limits of excavation is not required.

E. Backfill as indicated on the Drawings

F. Re-paving shall match existing paving, but shall not be less than three (3) inches of asphalt concrete placed upon twelve (12) inches of crushed aggregate base in compliance with Section 200-2.2 of the Standard Specifications for Public Works Construction.

3.7 Seal coat

A. Apply seal coat to hardscape areas in accordance with manufacturer's instruction in two (2) separate coats. Do not apply seal coat until thirty (30) days after placing of asphaltic concrete paving.

B. Install seal coat strictly with manufacturer’s written directions and recommendations.

3.8 Field Quality Control

A. Field inspection and testing of granular base and of asphalt concrete paving mix will be performed tests in accordance with TAIMS-2.

B. Testing firm to take samples and perform tests in accordance with TAIMS-2.

3.9 Protection

A. Immediately after placement protect pavement under provisions of Section 01600 from mechanical injury for two (2) days.

B. Protect all new placed pavements from landscape irrigation overspray and planter areas soil erosion.

End of Section 02741
SECTION 02821 - Chain-Link Fences and Gates

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 03300 “Cast-in-Place Concrete.”

1.2 Submittals

A. Product Data for each type of product indicated.

B. Shop Drawings: Show locations, components, materials, dimensions, sizes, weights, and finishes of components. Include plans, gate elevations, sections, details of post anchorage, attachment, bracing, and other required installation and operational clearances.

C. Samples:

1. For privacy slats: Provide 12 inch long samples.

PART 2 - Products

2.1 Chain-Link Fence Fabric

A. General: Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:

1. Steel Wire Fabric: Metallic-coated wire with a diameter of 0.192 inches.

   b. Metallic (Zinc) Coating: ASTM A 392, Type II, Class III.

2. Selvage: Knuckled at both selvages.

2.2 Fence Framing

A. Posts and Rails:

2. Strength Requirement: Heavy industrial according to ASTM F 1043.
3. Coating for Steel Framing:

   a. Metallic zinc coating.

2.3 Tension Wire

A. General: Provide horizontal tension wire at top and bottom of fence fabric.
B. Metallic-Coated Steel Wire: 0.177-inch diameter, marcelled tension wire complying with ASTM A 824.
   1. Metallic Zinc Coating: Type II, Class 3, zinc coating.

2.4 Swing Gates


B. Frames and Bracing: Fabricate members from round, galvanized steel tubing with outside dimension and weight according to ASTM F 900.

C. Frame Corner Construction: Welded and 5/16-inch diameter galvanized, adjustable truss rods for panels 5 feet wide or wider.

D. Provide latches permitting operation from both sides of gate, hinges, center gate stops and keepers for each gate leaf.

E. Gates in path of travel must comply with exit door requirements, per CBC Title 24. Gate hardware must not require pinching, grasping, or twisting motion to operate with 5 lbs. maximum opening pressure. Provide 10-inch-high by width of gate kickplates on each side, finished to match gate.

2.5 Fittings

A. General: Comply with ASTM F 626.

B. Finish:
   1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. / sq. ft. zinc.

2.6 Privacy Slats

A. PVC, UV-light stabilized.

B. Color: As selected by Architect from manufacturer’s full color range.

2.7 Cast-In-Place Concrete

A. Portland cement complying with ASTM C 150, Type I aggregates complying with ASTM C 33, and potable water. Normal-weight concrete with not less than 2500-psi compressive strength (28 days), 3-inch slump, and 1-inch maximum size aggregate.

PART 3 - Execution

3.1 Installation

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.

B. Use steel pipe sleeves preset and anchored into concrete and concrete masonry units for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with grouting compound, mixed and placed to comply with anchoring material manufacturer’s written instructions.

C. Space line posts uniformly.
D. Install post bracing and intermediate rails according to ASTM F 567. Install braces at end and gate posts and at both sides of corner and pull posts.

E. Install tension wire according to ASTM F 567, maintaining plumb position and alignment of fencing.

F. Install top rail according to ASTM F 567.

G. Install bottom rails, spanning between posts.


I. Attach wire per ASTM F 626. Bend ends of wire to avoid hazard to individuals and clothing.

J. Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Install privacy slats in vertical direction, securely locked in place.

3.2 Gate Installation

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
SECTION 02751 - Concrete Paving

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:
   1. Section 03300 “Cast-in-Place Concrete.”
   2. Section 07920 “Sealants.”

1.2 Submittals

A. Design Mixtures: For each concrete pavement mixture.

1.3 Quality Assurance

A. Obtain ready-mix concrete products from manufacturer who complies with ASTM C 94 requirements for production facilities and equipment.

B. Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

C. If concrete tests indicate that the strengths do not meet those specified, or if concrete has excessive pockets, or if reinforcing steel is exposed, or if concrete does not comply with the drawings and specifications, the defective concrete shall be removed and replaced as directed.

PART 2 - Products

2.1 Concrete Materials

A. Concrete: Portland Cement, ASTM C 150, Type V.

B. Fly Ash: ASTM C 618 may be used in site concrete only.

C. Weed Barrier: Dewitt Pro 5 or approved equal.

2.2 Reinforcing Materials

A. Bars: ASTM A 615, Grade 60.

B. Wire: ASTM A 82.

C. Wire Mesh: ASTM A 185.

2.3 Curing Materials

A. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. To be used where concrete is exposed.
B. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

C. Curing Compounds must be fully compatible with subsequent finishes and applied materials.

2.4 Concrete Mixtures

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 2500 psi unless noted otherwise on drawing.
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches plus or minus 1 inch.
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

PART 3 - Execution

3.1 Preparation

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. The subgrade shall be maintained in a smooth, compacted condition, in conformity with the required section and established grade until the concrete is placed.

3.2 Edge Forms and Screed Construction

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Lay weed barrier over prepared sub-base material.

C. Concrete surfaces, where left exposed, shall be formed on all sides with plywood with taped joints to give a smooth, uniform straight finish.

3.3 Joints

A. Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Set construction joints at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints. Locate construction joints at crack control joints.

C. Form isolation and expansion joints where paving abuts concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Concrete curbs: Provide expansion joints at beginning and at end of curves, intersections, and maximum 20-foot intervals between, set plumb, square and to same profile as the curbs.
2. Concrete Gutters: Provide expansion joints as above for curbs.
3. Concrete Walks: Provide expansion joints as specified for curbs and where walks abut rigid structures, aligned with joints in curbs where adjoining. Provide expansion joints at maximum 10 foot intervals in concrete walks.

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D. Form weakened-plane crack control joints, sectioning concrete into areas as indicated. Use control joints on all curbs, curbs and gutters, and cross gutters at maximum intervals of 10 feet on center. Sawed joints may be used in lieu of the above, providing they are at least one inch deep.

E. Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to radius indicated. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.4 Concrete Placement

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

3.5 Finishing

A. Walks and Pavement: Medium broom-finish perpendicular to longitudinal direction of the walk. Score walks in direction and pattern indicated or directed.

B. Gutters: Light broom-finish with 3 inch wide steel trowel finish at flowlines.

C. Curbs: Steel trowel finish, followed by fine hair brush finish.

D. Ramps: Heavy broom finish where slope is 6% or greater; medium broom-finish where slope is less than 6%.

E. Paving: Medium broom-finish, unless otherwise directed.

F. Driveway Aprons: Medium broom-finish, unless otherwise directed.

G. See Landscape Drawings for any additional architectural finishes.

H. Before final floating, spread slip-resistive aggregate finish where indicated on pavement surface according to manufacturer's written instructions.

   1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
   2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.
   3. Comply with CBC Title 24 and ADA requirements for slip resistant finishes and pavement slopes.

3.6 Concrete Protection and Curing

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. before and during finishing operations. Apply according to manufacturer's
written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Cure site concrete by curing compound.

F. After curing, debris shall be removed and the area adjoining the work shall be backfilled, graded, and compacted to conform to the surrounding area in accordance with lines and grades indicated.

3.7 Pavement Tolerances

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: ¼ inch.
3. Surface: Gap below 10-foot-long, unleveled straightedge not to exceed ¼ inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus ¼ inch, no minus.

3.8 Repairs and Protection

A. After stripping forms, clean all exposed concrete surfaces and all adjoining work stained by leakage of concrete. Remove all fins, burrs, and projections by grinding. Patch all voids, rock pockets, holes, cracks, etc., by chipping loose concrete and exposing clean sound aggregate. After inspection, dampen prepared recesses for 2 hours minimum and fill with drypack to within ¼” of surface. Keep drypack damp for 2 days minimum. Apply mortar to final surface and keep patch damp for 5 days minimum. Entire surface of concrete to be sacked with neat cement and water after surface is cleaned and patched.

B. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section. Concrete paving that shows evidence of staining, unusual wear, cracking or discoloration prior to completion of the project or during the 60-day maintenance period shall be replaced at no cost to the Owner. All concrete replacement shall include the entire panel of concrete in which the defect or damage occurs, to the nearest expansion or control joints, as approved. Refinishing the damaged portion will not be acceptable.

C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

D. All concrete gutters and concrete pavement shall be given a flood test. All concrete work where water ponds and does not run off in a reasonable amount of time, shall be removed to the nearest score or joint line and replaced to provide proper drainage.

E. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751
SECTION 02764 - Pavement Joint Sealants

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 02741 "Asphaltic Concrete Paving."
2. Section 02751 "Concrete Paving."
3. Section 07920 "Sealants."

1.2 Submittals

A. Product Data: For each joint-sealant product indicated.

B. Qualification Data: For Installer.

C. Compatibility and Adhesion: Provide reports from sealant manufacturer indicating materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

1.3 Quality Assurance

A. Provide trained Installer with workers.

B. Obtain each type of joint sealant through one source from a single manufacturer.

1.4 Delivery, Storage, and Handling

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.5 Project Conditions

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside documented limits permitted by joint-sealant manufacturer.
2. When ambient and substrate temperature conditions are outside documented limits permitted by joint-sealant manufacturer or are below 40° F.
3. When joint substrates are wet or covered with frost, or ice.
4. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
5. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
6. Provide joint sealant materials that are compatible with the rise and fall of substrate temperatures (range) from 120° F to 40° F.

PART 2 - Products

2.1 Manufacturers
   A. Subject to requirements, provide products by, or equal to, the manufacturer listed.

2.2 Materials
   A. Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

   B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer’s full range.

2.3 Cold-Applied Joint Sealants
   A. Multicomponent Jet-Fuel-Resistant Sealant for Concrete: Pourable, chemically curing elastomeric formulation complying with the following requirements for formulation and with ASTM C 920 for type, grade, class, and uses indicated:
      1. Urethane Formulation: Type M; Grade P; Class 12-1/2; Uses T, M, and, as applicable to joint substrates indicated, O. Pecora Corporation; Urexpan NR-300. Shore Hardness 15-25.

   B. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS. Dow Corning Corporation; 888. Shore Hardness 15-25.

   C. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL. Dow Corning Corporation; 890-SL. Shore hardness 15-25.

2.4 Primers
   A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

2.5 Tape
   A. Provide masking tape where needed to confine or limit extent of sealant and primers.

2.6 Bond Breaker
   A. Provide bond breaker as recommended in writing by sealant manufacturer.
PART 3 - Execution

3.1 Examination
A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Preparation
A. Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
B. Prime joint substrates where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 Installation of Joint Sealants
A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
B. Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
C. Install backer materials to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of backer materials.
   2. Do not stretch, twist, puncture, or tear backer materials.
   3. Remove backer materials that have become wet before sealant application and replace them with dry materials.
D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses provided for each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
E. Immediately after nonsag sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealants from surfaces adjacent to joint.
   2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Tool sealant to create smooth, straight edges at substrate.
F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
3.4 Cleaning

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur. Remove excess primer. Remove masking tape and latent adhesive from substrate surface.

3.5 Protection

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 02764
SECTION 02875 - Post and Panel Signage

PART 1 - General

1.1 Related Documents
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and
      Division 1 Specification Sections, apply to this Section.

1.2 Performance Requirements
   A. Provide post and panel signs capable of withstanding the effects of gravity loads and wind loads indicated
      on drawings.

1.3 Submittals
   A. Product Data: For each type of product indicated.

1.4 Quality Assurance
   A. Obtain each sign type indicated from one source from a single manufacturer.
   B. Comply with the current edition of the “Americans with Disabilities Act (ADA) and California Title 24
      Accessibility Regulations.

1.5 Project Conditions
   A. Proceed with installation only when existing and forecasted weather conditions permit installation of
      signs to be performed according to manufacturers' written instructions and warranty requirements.

PART 2 - Products

2.1 Materials
   A. Aluminum Sheet: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for
      type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-
      H32. Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a
      tolerance of plus or minus 1/16 inch measured diagonally from corner to corner. Provide 0.125 inch thick
      panel with predrilled holes for mounting sign to chain link mesh.
   B. Reflectorized Sign Film: 3M DG reflective sheeting Series 4000 or approved equal.

2.2 Accessories
   A. Provide nonferrous-metal or hot-dip galvanized wire tie anchors for exterior installations and elsewhere
      as required for corrosion resistance.
PART 3 - Execution

3.1 Examination

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

A. Locate signs and accessories where indicated. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance. Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to chain link mesh.

3.3 Cleaning and Protection

A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 02875
SECTION 03300 - Cast-In-Place Concrete

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include:
   1. Section 02300 “Earthwork.”
   2. Section 02751 “Concrete Paving.”

1.2 Submittals

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments. Indicate amounts of mixing water, if any, to be withheld for later addition at Project site. Provide wet signature and seal by California registered Civil Engineer on mix design.

C. Floor surface flatness and levelness measurements to determine compliance with specified tolerances.

D. Field quality-control test and inspection reports.

E. Minutes of pre-installation meeting.

F. Placement Schedule: Submit concrete placement schedule before start of placement operations. Include locations of all joints including construction joints.

1.3 Quality Assurance

A. Provide a qualified installer who employs on Project qualified personnel.

B. Provide a manufacturer experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment. Manufacturer must also be certified according to NRMCA’s “Certification of Ready Mixed Concrete Production Facilities.”

C. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

D. Qualify welding procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel.”

E. Comply with the following unless modified by requirements in the Contract Documents:
   2. ACI 301, “Specification for Structural Concrete.”
   3. ACI 302.1, “Guide for Concrete Floor and Slab Construction.”
   4. ACI 304, “Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.”
5. ACI 305, “Hot Weather Concrete.”
6. ACI 306, “Cold Weather Concrete.”
7. ACI 347, “Recommended Practice for Concrete Formwork.”

F. Comply with provisions of the Concrete Reinforcing Steel Institute “Manual of Standard Practice” and CBC Chapter 19A.

1.4 Delivery, Storage, and Handling

A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

C. Deliver, store and handle form liners to prevent deformation, cracking and other damage detrimental to function of form liner.

1.5 Project Conditions

A. Protect adjacent finish materials against spatter during concrete placement.

PART 2 - Products

2.1 Form-Facing Materials

A. Provide formwork per ACI 347 and ACI 301.

B. Provide smooth-formed finished concrete by using form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Fiberglass, metal, or other approved panel materials.
2. High-density overlay, Class 1 or better. DOC PS 1.
3. Tubforms of metal, fiberglass or other seamless material leaving no marks on finished concrete

C. Provide rough-formed finished concrete by using APA form V-354 plywood, PS 1-95, Group I, exterior BB plyform, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit, conforming to WWPA No. 1 or better. Form columns using spiral fiber tubes.

D. Chamfer Strips: Wood, metal, PVC, or rubber strips, ¾ by ¾ inch, minimum.

E. Form-Release Agent: Commercially formulated form-release agent free of oil, silicone, wax and non-drying materials that will not bond with, stain, or adversely affect concrete surfaces and is compatible with and will not impair subsequent finishes and treatments of concrete surfaces. Formulate form-release agent with rust inhibitor for steel form-facing materials.

F. Form Ties: Factory-fabricated ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.
2. Furnish ties with tapered tie cone spreaders that, when removed, will leave holes ¾ inch in diameter on concrete surface.
3. Furnish internally disconnecting ties that will leave no metal closer than 1 inch from the architectural concrete finish surface.

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G. Form Joint Tape: Compressible foam tape; pressure sensitive; AAMA 800, "Specification 810.1, Expanded Cellular Glazing Tape"; minimum ¼ inch thick.

H. Form Joint Sealant: Elastomeric sealant complying with ASTM C 920, Type M or S, Grade NS that adheres to form joint substrates.

I. Sealer: Penetrating, clear, polyurethane wood form sealer formulated to reduce absorption of bleed water and prevent migration of set-retarding chemicals from wood.

J. Surface Retarder: Chemical liquid set retarder, for application on form-facing materials, capable of temporarily delaying final hardening of newly placed concrete surface to depth of reveal specified.

2.2 Steel Reinforcement

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed, unless otherwise indicated. ASTM A 706 Grade 60, for bars requiring welding.

B. Steel Bar Mats: ASTM A 184, fabricated from ASTM A 615, Grade 60, deformed bars, assembled with steel wire.

C. Plain-Steel Wire: ASTM A 82.

D. Plain-Steel Welded Wire Fabric: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 Reinforcement Accessories

A. Welding Electrodes: AWS A5.5 E90XX for welding Grade 60 reinforcing steel and meeting CBC Section 2213A.4.1. Notch toughness of 20 ft. lbs. at minus 20° F.

B. Provide bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place per ACI 315. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 Concrete Materials

A. Portland Cement: ASTM C 150, Type V. Color: gray. Use one brand of cement throughout Project.

B. Silica Fume: ASTM C 1240, amorphous silica.

C. Normal-Weight Aggregates: ASTM C 33, Class 2M in conformance with CBC, maximum coarse-aggregate size 1 inch nominal. Fine aggregate, free of materials with deleterious reactivity to alkali in cement. Provide aggregates from a single source for exposed aggregate finishes.

D. Water: ASTM C 94 and potable.

2.5 Admixtures

A. Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
2. Water-Reducing Admixture: ASTM C 494, Type A.
3. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or G.
4. Water-Reducing Accelerating Admixture: ASTM C 494, Type E.

2.6 Curing Materials

A. Moisture-Retaining Cover: ASTM C 171, polyethylene film, non-staining, 10 mil thickness.
B. Water: Potable.
C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. For integrally colored concrete, curing compound shall be pigmented type approved by concrete color pigment manufacturer. For concrete indicated to be sealed, curing compound shall be compatible with sealer. Curing compound must be compatible with subsequent finishes and floor treatments.

1. Subject to requirements provide products of, or equal to the following:
   a. ChemMasters; Safe-Cure Clear.
   b. Euclid Chemical Company (The); Kurez DR VOX.
   c. L&M Construction Chemicals, Inc.; L&M Cure R.

2.7 Related Materials

A. Expansion- and Isolation-Joint-Filler Strips:
B. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces. Sikadur Hi-Mod, Sika Corporation, or approved equal.
C. Anchor Adhesive: Subject to requirements provide the following: Epoxy Adhesive as per plans, or approved equal.
D. Concrete Surface Repair: Masterflow grout, or approved equal.
E. Granular Base: Evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.

2.8 Concrete Mixtures

A. Prepare design mixtures for each type and strength of concrete indicated, according to ACI 301. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
B. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
C. Use admixtures according to manufacturer's written instructions.
2.9 Fabricating Reinforcement

A. Fabricate steel reinforcement according to CRSI’s “Manual of Standard Practice.”

2.10 Concrete Mixing

A. Mix concrete in accordance with ASTM C 94 and CBC Section 1905A.8, Chapter 19A. Limit time from batch plant to placement, 90 minutes maximum.

1. Deliver to Inspector on site, with each mixer load of concrete, certificate bearing signature of the Weighmaster and Testing Laboratory batch plant inspector stating quantities of each material contained in load and time mixer was loaded.

2. Delivery Requirements:
   a. Licensed Weighmaster shall positively identify materials as to quantity and certify each load by ticket.
   b. Ticket shall be transmitted to Project Inspector by truck driver.
   c. Project Inspector shall keep daily record of pours, identify each truck, its load and time of receipt and transmit duplicate copy of record to Building Authority.
   d. Concrete arriving at Work without Weighmaster ticket will be rejected.
   e. Weighmaster shall furnish affidavit to Building Authority on satisfactory form, certifying concrete furnished conforms to proportions established by mix designs.

3. Representative of Testing Laboratory shall maintain continuous inspection of batch plant preparation of concrete, including review of aggregate and cement, loading and mixing procedures, and final quantities contained in each truck load.

   a. Where batch plant is certified as conforming to quality control and equipment criteria defined by CBC Section 1704A.4.4, Chapter 17A, Part 2, Title 24, batch plant inspection may be waived, following acceptance of such certification by Building Authority.

PART 3 - Execution

3.1 Formwork

A. Design, erect, shore, brace, and maintain formwork according to ACI 347, PS-1 and CBC, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Limit deflection of form-facing panels to not exceed ACI 303.1 requirements.

C. In addition to limits on form-facing panel deflection, limit cast-in-place architectural concrete surface irregularities, designated by ACI 347R as abrupt or gradual, Class A, 1/8 inch.

D. Fabricate forms to result in cast-in-place concrete that complies with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

E. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated.

F. Construct forms tight enough to prevent loss of concrete mortar.
G. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.
3. Seal form joints and penetrations at form ties with form joint tape or form joint sealant to prevent cement paste leakage.

H. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

I. Where joints, form ties and other form work features will show in exposed concrete, arrange elements in a symmetrical pattern.

J. Chamfer all exterior corners and top and bottom edges of permanently exposed concrete.

K. Coordinate with and notify other trades to permit timely installation of their work within the sequence of formwork and reinforcing placement; cooperate with other trades in setting such work.

L. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

M. Clean forms and adjacent surfaces to receive concrete. Remove ships, wood, sawdust, dirt, and other debris just before placing concrete.

N. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

O. Coat contact surfaces of forms, wood rustications and chamfer strips with form-release agent, according to manufacturer’s written instructions, before placing reinforcement. Thin form-coating compounds only with thinning agent of type, amount, and under conditions of form-coating compound manufacturer’s directions. Do not allow excess form-coating material to accumulate in forms or to come into contact within-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer’s instructions.

P. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

Q. Install void forms and EPS board per manufacturer’s written recommendations. Install and secure EPS board in a manner to prevent any movement or shifting of board during concrete placement.

R. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and attach securely to prevent deflection and maintain stability of liners during concreting. Prevent form liners from sagging and stretching in hot weather. Seal joints of form liners and form liner accessories to prevent mortar leaks. Coat form liner with form-release agent.

3.2 Embedded Items

A. Place and secure anchorage devices, sleeves, block outs and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete including Work of other trades. Use setting drawings, templates, diagrams, instructions, to coordinate and locate items to be embedded.
1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC’s “Code of Standard Practice for Steel Buildings and Bridges.”
2. Install reglets to receive waterproofing and flashings in outer face of concrete.
3. Install dovetail anchor slots in concrete structures as indicated.

B. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.3 Removing and Reusing Forms

A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing for not less than 7 (seven) days after placing concrete, and if concrete is hard enough to not be damaged by form-removal operations and if curing and protection operations are maintained.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent. Tighten forms to close joints and align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.4 Shores and Reshores

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequatereshoring to support construction without excessive stress or deflection.

3.5 Steel Reinforcement

A. Comply with CRSI’s "Manual of Standard Practice" for placing reinforcement. Do not cut or puncture vapor retarder. Repair damage with manufacturer’s recommended tape and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars. Weld reinforcing bars according to AWS D1.4, where indicated. Perform welding of reinforcing under supervision of welding inspector.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
3.6 Joints

A. Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Install joints so strength and appearance of concrete are not impaired, in locations indicated.
   1. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
   2. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Crack Control Joints in Slabs-on-Grade: Form weakened-plane crack control joints, sectioning concrete into areas as indicated and so strength and appearance are not impaired.
   1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to radius indicated. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
   2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Expansion Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips and sealant at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
   1. Terminate full-width joint-filler strips not less than ½ inch or more than 1 inch below finished concrete surface.
   2. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, tightly butt sections together.

3.7 Concrete Placement

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Moisten wood forms immediately before placing concrete where form coatings are not used. Apply temporary protective covering to lower 2 feet of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.

B. Do not add water to concrete during delivery, at Project site, or during placement.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. Deposit concrete to avoid segregation. Deposit concrete continuously between construction joints. Deposit concrete in layers, while each preceding layer is still plastic to avoid cold joints.
   1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
   2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
   3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At
each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate. Do not permit vibrators to contact forms, form ties or reinforcing.

4. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified.

5. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.


E. Deposit and consolidate concrete for floors and slabs continuously, within limits of construction joints, until placement of a panel or section is complete. Pour floors and slabs in alternating strips. Allow strips to sufficiently harden before continuing to pour remaining strips between.

1. Screed slab surfaces with a straightedge and strike off to correct elevations.
2. Slope surfaces uniformly to drains where required.
3. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Hot-Weather Placement: Comply with ACI 301, ACI 305, and as follows:

1. Maintain concrete temperature below 90° F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.
3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

G. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

1. When air temperature has fallen to or is expected to fall below 40° F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50° F, and not more than 80° F at point of placement.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.

3.8 Finishing Floors and Slabs

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: After placing, plane surface to tolerances of floor flatness of F15 and floor levelness of F13. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce profile. Apply scratch finish to surfaces indicated and to receive concrete floor toppings, and mortar setting beds for bonded cementitious floor finishes.

C. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, stain, paint, or other thin film finish coating system.
1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats. Consolidate surface by floating. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture. Float surfaces according to ASTM E 1155, to a flatness of F18 and levelness of F15.

2. After applying float finish, apply first troweling. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, with surface leveled to tolerance of F20-F17. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot-long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch.

D. Broom Finish: Apply a first trowel finish to surfaces. While concrete is still plastic, slightly scarify surface with a bristle broom. Use broom texture indicated. Apply broom finish where indicated and where tile or stone will be thinset to slab.

E. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 Concrete Protecting and Curing

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Control evaporation from unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. before and during finishing operations.

C. Cure formed concrete surfaces, including underside of beams, supported slabs, columns and other similar surfaces. Begin curing unformed surfaces immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces. Cure concrete according to ACI 308.1, by one or a combination of the following methods that will not mottle, discolor or stain concrete:

1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

2. Apply curing compound uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.10 Concrete Surface Repairs

A. Repair and patch defective areas. Remove and replace concrete elements that cannot be repaired and patched.

B. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct low areas by cutting and removing low areas in their entirety and replacing with new concrete. Finish repaired areas to blend with adjacent concrete.

4. Correct interior low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a ¾-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

6. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

C. Perform repairs of structural concrete, with prior acceptance of Architect.

D. Repair methods not specified above may be used, subject to acceptance of Architect.

3.11 Field Quality Control

A. Perform work of this Section under the supervision of a capable concrete superintendent.

B. Provide free access to work and cooperate with appointed testing and inspection firm.

C. Field inspection and testing per CBC Section 1903A, Chapter 19A, Part 2, Title 24, will be performed in accordance under provisions of Section 01400 “Quality Requirements.” Inspector will reject concrete not conforming to this Section, including concrete which is not placed within 90 minutes after batching.

D. One slump test will be taken for each set of test cylinders taken.

E. Concrete shall not be placed until the forms and reinforcements have been inspected, all preparations for the placement have been completed, and the preparations have been checked by a special inspector approved by jurisdictional authority.

F. Molded Cylinder Tests: Shall be obtained from the point where the concrete is placed into the forms in accordance with ASTM C 172 and in accordance with the following:

1. There shall be not less than one sample for each 50 cubic yards of structural concrete, for each grade of concrete used, and there shall be at least one sample for each day’s placement for each grade of concrete used except when the total volume of concrete of any grade exceeds 150 cu. yds. placed per day; there shall be one sample for each 150 cu. yds., or fraction thereof, in excess of 150 cu. yds., or not less than once for each 2,000 sq. ft. of surface area for slabs or walls.

2. Each cylinder shall be dated, given a number, the point in the structure from which the sample was taken, the mix design number, mix design strength, and the result of the accompanying slump test noted.
3. Separate tests of molded concrete cylinders taken at the same place and time shall be made at the age of 7 days and 28 days.
4. Test cylinders shall be made at the job and stored in the Testing Laboratory in accordance with ASTM C 31, and tested in accordance with ASTM C 39.

G. Slump Test: Measure consistency in accordance with ASTM C 143. This test shall be made by the Inspector for each set of test cylinders taken.

H. Placing Record: A record shall be kept on the site of the time and date of placing the concrete in each portion of the structure. Such record shall be kept until the completion of the structure and shall be open to the inspection of the Building Department and the Architect.

I. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect. Additional testing and inspecting, at contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

3.12 Defective Concrete

A. Mix Proportions: If ultimate compressive strength of test cylinders fall below minimum assumed in design, proportions of concrete mixes for remaining portion of structure shall be adjusted as required to produce concrete of design strength.

B. Test Cores: Should required test cylinders fail to show design compressive strength, take test cores at locations designated by Architect. If results show compressive strength to be less than design stress, concrete shall be deemed defective and replaced in a manner acceptable to Architect, and Building Authority. Cost of cores and patching shall be paid by contractor. Drypack coring holes. Test cores following CBC Chapter 19A, Title 24.

C. Concrete work not formed as indicated, not true to intended alignment, not plumb, level, or true to intended grades, with embedded sawdust or debris, and not fully conforming to the provisions of these specifications shall be deemed defective and removed from the job site as directed by the Architect and replaced with concrete complying with specification requirements.

3.13 Protection and Cleaning

A. Protect corners, edges, and surfaces of concrete from damage; use guards and barricades.

B. Protect concrete from staining, laitance, and contamination during remainder of construction period.

C. Clean concrete surfaces after finish treatment to remove stains, markings, dust, and debris.

D. Wash and rinse surfaces according to concrete finish applicator’s written recommendations. Protect other Work from staining or damage due to cleaning operations. Do not use cleaning materials or processes that could change the appearance of cast-in-place architectural concrete finishes.

End of Section 03300
SECTION 04810 – Concrete Masonry Units

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 03300 “Cast-in-Place Concrete.”
2. Section 07620 “Sheet Metal Flashing and Trim.”
3. Section 07841 “Through-Penetration Firestop Systems.”
4. Section 07920 “Sealants.”

C. Products installed, but not furnished, under this Section include the following:

1. Steel lintels and shelf angles for unit masonry.
2. Manufactured reglets in masonry joints for metal flashing.

1.2 Performance Requirements

A. Provide unit masonry that develops indicated net-area compressive strengths ($f_{\text{m}}$) at 28 days.

1.3 Submittals

A. Product Data: For each type of product indicated.

B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients per ASTM C 780 and ASTM C 1019.

1.4 Quality Assurance

A. Obtain exposed masonry units from a single manufacturer for each product required.

B. Obtain mortar ingredients from a single manufacturer for each cementitious component and from one source for each aggregate.

C. Comply with CBC, Title 24, Part 2, Chapter 21A, masonry.

D. Comply with ACI 530.1/ASCE-6, Specifications for Masonry Structures, or as otherwise indicated.

1.5 Delivery, Storage, and Handling

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry. Protect units from staining.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location.

E. Store masonry accessories, including metal items, to prevent staining corrosion and accumulation of dirt and oil.

F. Deliver reinforcing bars to site bundled, tagged and marked.

1.6 Project Conditions

A. During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

B. Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

C. Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

D. Use liquid cleaning methods only when air temperature is 40°F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

E. Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - Products

2.1 Manufacturers

A. Subject to requirements, provide products by one of, or equal to, the following:

1. Angeles Block Co.
2. Orco Block Co.

2.2 Masonry Units, General

A. Do not use defective masonry units where defects, including dimensional variances that exceed stated tolerances, will be exposed in the completed Work or will impair the quality or structural performance of completed masonry.
2.3 Concrete Masonry Units

A. Provide special shapes, such as open end units, channel blocks, lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions to complete the work.

B. Concrete Masonry Units: ASTM C 90, normal weight.
   1. Unit Compressive Strength: 1900 psi unless otherwise noted.
   2. Provide color and texture matching the range represented by Architect's sample.
   3. Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.

C. Masonry units shall have cured for not less than 28 days when placed in structure. Masonry units shall have a maximum linear shrinkage of 0.06% from saturated to oven-dry condition, when tested according to methods published in the Quality Control Standards of the Concrete Masonry Association.

2.4 Masonry Lintels

A. Built-in-place masonry lintels made from bond beam concrete masonry units with reinforcing bars placed as indicated and filled with coarse grout. Temporarily support built-in-place lintels until cured. Match surrounding masonry units in color texture and all other aesthetic features.

2.5 Reinforcing Bars

A. Steel reinforcing bars, deformed. ASTM A 615 Grade 60

2.6 Ties and Anchors

A. Provide ties and anchors that are made from the following materials:
   2. Steel Sheet: ASTM A 1008, hot-dip galvanized after fabrication to comply with ASTM A 153.
   4. Stainless Steel bars: ASTM A 276 or ASTM A 666, Type 304.

B. Stone Anchors: Fabricate dowels, cramps, and other stone anchors from stainless steel.

2.7 Miscellaneous Anchors

A. Unit Type Inserts in Concrete: Cast-iron or malleable-iron wedge-type inserts.

B. Dovetail Slots in Concrete: Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.034-inch, galvanized steel sheet.

C. Anchor Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C.

D. Provide carbon-steel zinc plated epoxy anchors, with capability to sustain, without failure, a load equal to six times the load imposed per ASTM E 488.
2.8 Miscellaneous Accessories

A. Pre-molded filler strips complying with ASTM D 1056 Grade 2A1 compressible up to 35 percent of width and thickness indicated.

2.9 Masonry Cleaners

A. Provide manufacturer's standard-strength masonry cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.10 Mortar and Grout Mixes

A. Do not use admixtures, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated. Do not use calcium chloride in mortar or grout. Mortar and grout mixes shall be laboratory designed at 28 days compressive strength as indicated.

B. Aggregate for Mortar: ASTM C 144, except for joints less than ¼-inch, use aggregate graded with 100% passing No. 16 sieve.

1. White-Mortar Aggregates: Natural white sand or crushed white stone.

C. Aggregate for Grout: ASTM C 404. Pea gravel except graded with not more than 5% passing No. 8 sieve and 100% passing 3/8-inch sieve.

D. Grout for Unit Masonry: Comply with ASTM C 476. Provide grout with a slump of 8 to 11 inches per ASTM C 143. Provide sufficient water in mix to allow grout to flow into all cells.

E. Mortar Admix: Red Label Suconem, Anti-hydro or approved equal.

F. Grout Admix: Sika GA Grout Aid or equal. Type II, 6 lbs. per cubic yard of grout.

G. Mortar Sand: ASTM C 144.

H. Grout Sand: ASTM C 404.

I. Hydrated Lime: ASTM C 207, Type S.

J. Portland Cement: ASTM C 150 Type V.

K. Water: Potable and clean.

2.11 Source Quality Control

A. Owner will engage a qualified independent testing agency to perform source quality-control testing indicated below:

1. Payment for these services will be made by Owner.

2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

B. Concrete Masonry Unit Test: For each type of unit furnished, per ASTM C 140.
PART 3 - Execution

3.1 Examination

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed. When a foundation dowel does not line up with a vertical core, do not slope more than one horizontal in six vertical. Grout dowels into core in vertical alignment, even though it is in an adjacent cell to the vertical wall reinforcing.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with installation indicates acceptance of conditions.

3.2 Installation, General

A. Comply with CBC Sections 2104A.3 and 2104A.7 in addition to referenced unit masonry standard and other requirements indicated applicable to each type of installation included in Project.

B. Build masonry construction to full thickness shown. Build walls using units of widths indicated.

C. Build chases and recesses to accommodate items specified in this and other Sections.

D. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

E. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws with diamond blades; provide clean, sharp, unchipped edges without spalling. Allow units to dry before laying unless wetting of units is specified. Install units with cut surfaces and, cut edges concealed wherever possible. Cut unit to maintain uniform joint widths.

F. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Where units of varying shades or textures are being placed, mix units from several pallets or cubes as they are placed.

G. Where matching existing masonry is required, match coursing, bonding, color, and texture of existing masonry.

H. Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

I. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:

1. For conspicuous vertical lines, such as external corners, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet maximum.
3. For exposed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to ½ inch. Do not vary from joint thickness of adjacent courses by more than 1/8 inch.

4. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.3 Laying Masonry Walls

A. Execute masonry work according to the best standards of practice for the trade. Erect work plum, square, straight and true to indicated lines, positions and dimensions and in level courses.

B. Make provision for special units as required to form bond beams, openings and offsets and maintain a proper bond throughout entire length of wall.

C. Fractional parts of masonry units are prohibited in the work where whole units can be used. Chinking of interstices with fragments and parts is prohibited.

D. Provide masonry units that are sound, dry, clean, and free from cracks when placed in the structure.

E. Cut units accurately to fit openings for other work. Cut and patch holes neatly and accurately.

F. If it is necessary to move a unit after it has been once set in place, remove the unit from the wall, clean and set in fresh mortar.

G. Masonry Bonding to Foundation: Clean top surface of concrete foundation, remove laitance and expose aggregates before placing masonry units.

H. Lay up the wall in straight uniform courses with regular running bond.

I. Corners shall have a standard masonry bond by overlapping unit sand grout solid.

J. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

K. For bond pattern masonry do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

L. Lay concealed masonry in running bond pattern. Bond and interlock each course at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

M. Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

N. As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry and mortar around built-in items. Assure a 1-inch minimum space between masonry and built in item.

O. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.
3.4 Mortar Bedding and Jointing
A. Prepare mortar freshly and mix uniformly.
B. Lay concrete masonry units with entire units, fully bedded in mortar.
C. Lay the starting joints on foundations with full mortar coverage on the bed joint. Keep area where grout is to be placed from mortar to that grout will contact the foundation.
D. Mortar joints shall be straight, clean, and uniform in width. Tool with a round bar to produce a dense, slightly concave surface well bonded to the block on each side.
E. Perform tooling when mortar is partially set but still sufficiently plastic to bond. Use a tool which compacts the mortar, pressing excess mortar out of joint rather than dragging it out.
F. Rake out joints which are not tight at the time of tooling, point and then tool.
G. Unless otherwise shown, make joints 3/8” thick with full mortar coverage on face shells and on the webs surrounding cells to be filled.
H. Set lintels, capping units and bearing plates in a full bed of mortar.
I. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes other than paint, and where masonry is concealed or will be furred with framing.

3.5 Masonry Joint Reinforcement
A. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, ½ inch elsewhere. Lap reinforcement a minimum of 6 inches.
B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
C. Provide continuity at wall intersections by using prefabricated T-shaped units.
D. Provide continuity at corners by using prefabricated L-shaped units.

3.6 Control and Expansion Joints
A. Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall movement.
B. Form control and expansion joints in concrete masonry as indicated. Do not allow grout or mortar to fill expansion joints. Clean expansion joints as Work progresses.
C. Locate control joints maximum 24 feet on center or as indicated, whichever is closer spacing.
D. Locate expansion joints on free standing walls maximum 40 feet on center or as indicated.

3.7 Reinforced Unit Masonry Installation
A. Construct formwork and shores as needed to support reinforced masonry elements during construction.
1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with ACI 530.1/ASCE 6/TMS 602.

C. Grouting

1. Do not place grout until entire height of masonry to be grouted as attained enough strength to resist grout pressure.

2. Wet masonry unit surfaces in contact with grout just prior to grout placement.

3. When grouting is stopped for more than one hour, terminate grout ½-inch below top of upper masonry unit to form a positive key for subsequent grout placement.

4. Low lift grouting:
   a. Install masonry units to a maximum height of 48 inches.
   b. Remove all overhanging mortar and mortar droppings.
   c. Place first lift of grout and mechanically vibrate for grout consolidation. Place subsequent lifts in not more than 24-inch increments and vibrate for grout consolidation.

5. Solid grout all cells and courses, no exceptions. Consolidate with ¾” diameter mechanical vibrator inserted into each and every cell.

6. Embed reinforcement completely in grout with minimum coverage specified above.

7. Use grout as fluid as possible for pouring without allowing segregation of constituent parts.

D. Parging

1. Parge pre-dampened concrete unit masonry walls where indicated with Type S or N mortar applied in 2 uniform coats to a total thickness of ¾-inch. Scarify first parging coat to ensure full bond to subsequent coat.

2. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8-inch per foot. Form a wash at top of parging and a cove at bottom.

3. Curing of Parging: Damp cure parging for at least 24 hours and protect until cured.

3.8 Field Quality Control

A. Contractor will engage qualified professional to perform inspections. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.

1. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

B. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.

C. Concrete Masonry Unit Test: For each type of unit provided, per ASTM C 140.

D. Mortar Test (Property Specification): For each mix provided, per ASTM C 780. Test mortar for compressive strength.

E. Grout Test (Compressive Strength): For each mix provided, per ASTM C 1019.
F. Prism Test: For each type of construction provided and when required by Structural Engineer per CBC Section 2105A.2.2.2.

3.9 Repairing, Pointing, and Cleaning

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, clean, uniform appearance. Prepare joints for sealant application, where indicated.

C. Remove concrete scum and grout stains on the wall immediately. After the wall is constructed, do not saturate with water for curing or any other purpose. Where atmosphere is dry, dampen the wall surfaces with a very light fog spray for 3 days.

D. Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

E. After mortar is thoroughly set and cured, clean exposed masonry as follows:
   1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
   2. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
   3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
   4. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.10 Masonry Waste Disposal

A. At completion of unit masonry work, remove all excess materials and waste from Project site and dispose of off Owner’s property.

END OF SECTION 04810
SECTION 06105 - Miscellaneous Carpentry

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 07620 “Sheet Metal Flashing & Trim.”

1.2 Definitions

A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

3. NLGA: National Lumber Grades Authority.
5. WCLIB: West Coast Lumber Inspection Bureau.

1.3 Submittals

A. Product Data for each product.

1.4 Quality Assurance

A. Provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria":

1.5 Delivery, Storage, and Handling

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - Products

2.1 Wood Products, General

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

3. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 Miscellaneous Lumber

A. Provide miscellaneous lumber for support or attachment of other construction.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 12 percent maximum moisture content of any species a time of enclosure.

C. For blocking not used for attachment of other construction Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.3 Fasteners

A. Provide fasteners of size and type that comply with requirements specified in this Article for material and manufacture. Where carpentry is exposed to weather or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153.

B. Nails, Brads, and Staples: ASTM F 1667.


D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

PART 3 - Execution

3.1 Installation, General

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

D. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
5. Table 2306.1, "Fastening Schedule," in SBCCI's Standard Building Code.
7. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in ICC's International One- and Two-Family Dwelling Code.

E. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

END OF SECTION 06105
SECTION 07131 - Self-Adhering Sheet Waterproofing

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 03300 “Cast-in-Place Concrete.”
2. Section 04810 “Concrete Masonry Units.”

1.2 Performance Requirements

A. Provide waterproofing that prevents the passage of water and complies with physical requirements in:

1. ASTM C 981, Horizontal Applications.
2. ASTM D 5898, Vertical and Horizontal Applications.


1.3 Submittals

A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing. Include VOC content.

B. Shop Drawings: Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions. Include setting drawings showing layout, sizes, sections, profiles, and joint details.

C. Samples: For the following products:

1. 12-by-12-inch square of waterproofing sheet applied to ½” plywood layered to show primer and sheet lapping.
2. 12-by-12-inch square of drainage composite.
3. Provide samples on half-inch plywood showing primer, sheet membrane and drainage composite layered to show each coat.

D. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.

E. Qualification Data: For installer.

F. Warranties: Sample of special warranties specified in this Section.

G. Written documentation of installer’s qualifications, including reference projects of similar scope and complexity, with current phone contacts of Architect and Owner for verification. Include documentation indicating that installer has been trained and certified by manufacturer of waterproofing to install products specified.
1.4 Quality Assurance

A. Obtain waterproofing system through one source from a single manufacturer. Obtain accessory products used with waterproofing from sources acceptable to the waterproofing manufacturer.

B. Provide installer that is approved or licensed in writing by the waterproofing manufacturer for installation of waterproofing required for this project, and has a minimum of 5 years experience in the installation of products specified on projects of similar size and scope. Provide workers and supervisors who are trained and experienced in the handling and installation of products specified in this Section. Use adequate numbers of skilled workers thoroughly trained and familiar with the necessary crafts and completely familiar with the required and methods needed for proper performance of the work of this Section. Installer shall designate a single individual as project foreman who shall be on site at all times during installation.

C. Conduct pre-installation meeting at Project site. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs. Distribute minutes of meeting to all concerned parties.

D. Provide products that comply with VOC limits of authorities having jurisdiction.

E. Coordinate with all trades with work penetrating membrane. Coordinate locations and groupings of conduits and piping through waterproofing to assure that conduits and pipes are not bundled or bunched together. Provide a minimum spacing of 6 inches minimum between each item of piping and conduit.

F. Owner will engage an independent waterproofing consultant to observe installation of waterproofing membrane. Coordinate with Owner’s waterproofing consultant to assure attendance at pre-installation meetings and field installation of membrane.

G. Examine Drawings and Specifications affecting work of this Section, verify all conditions, review installation procedures, and coordinate scheduling with interfacing portions of the work.

1.5 Delivery, Storage, and Handling

A. Deliver materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store materials in their original undamaged packages in a clean, dry, protected location, within temperature range required by the waterproofing manufacturer, and protected from sunlight and UV exposure.

C. Remove and replace materials that cannot be applied within their stated shelf life.

D. Store rolls according to manufacturer's written instructions.

E. Protect stored materials from direct sunlight and UV exposure.

1.6 Project Conditions

A. Apply waterproofing products within the range of ambient and substrate temperatures recommended by the waterproofing manufacturer. Do not apply waterproofing products to a damp or wet substrate. Do not apply waterproofing in snow, rain, fog, or mist. Proceed with installation only when existing and forecasted weather conditions permit waterproofing to be installed according to manufacturer’s written
instructions and warranty requirements. Do not apply waterproofing materials to surfaces where ice, frost or moisture is visible or present.

B. Assure that a smooth solid substrate is provided in all areas to receive waterproofing and associated flashings and terminations. Provide substrates that are free of standing water, dirt and debris, loose material, voids which may inhibit application or performance of waterproofing. Provide substrates that are free of voids by filling if necessary and free of surface protrusions more than 1/8” above the surface by grinding. Provide wood float or better finish to concrete surfaces scheduled to receive the waterproofing.

C. Maintain adequate ventilation during preparation and application of waterproofing materials.

D. Do not install membrane until all items that will penetrate membrane have been installed.

E. Do not install membrane, primer or flashing when moisture content of pH levels exceed those recommended in writing by waterproofing manufacturer.

F. Coordinate locations and groupings of conduits and piping through waterproofing to assure that conduits and pipes are not bundled or bunched together. Provide a minimum spacing of 6 inches minimum between each item of piping and conduit.

1.7 Warranty

A. Provide special joint warranty in which manufacturer, contractor and installer agree to replace waterproofing materials, flashings and installations that do not comply with requirements or that fails to remain watertight within specified warranty period.

1. Warranty does not include failure of waterproofing due to failure of substrate prepared and treated according to requirements or formation of new joints and cracks in substrate exceeding 1/8 inch in width. Warranty does include failure due to installation over a properly prepared substrate, but before moisture or pH levels are below waterproofing manufacturer’s written requirements.

2. Warranty Period: Ten (10) years.

3. Warranty includes removing and reinstalling drainage panels and construction which needs to be removed to expose waterproofing.

PART 2 - Products

2.1 Self Adhering Sheet Waterproofing Vertical Application

A. Provide membrane in necessary thickness to achieve specified warranty with self-adhering sheet not less than 56-mils, whichever is greater, of rubberized asphalt laminated to a 4-mil thick, polyethylene film with a release liner on adhesive side and formulated for application with primer.

1. Subject to requirements, provide products by one of, or equal to, the following:

   b. CETCO Building Materials Group; Envirosheet.
   e. Pecora Corporation; Duramem 700-SM.

2. Physical Properties:

   a. Tensile Strength: 250 psi minimum; ASTM D 412, Die C, modified.
b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836.
e. Puncture Resistance: 40 lbf minimum; ASTM E 154.
f. Hydrostatic-Head Resistance: 150 feet minimum; ASTM D 5385.
g. Water Absorption: 0.15 percent weight-gain maximum after 48-hour immersion at 70° F; ASTM D 570.
h. Vapor Permeance: 0.05 perms; ASTM E 96, Water Method.

3. Provide products that are resistant to hydrocarbons if recommended by geotechnical engineer. Verify requirements with geotechnical engineer prior to order and purchasing of material.

2.2 Auxiliary Materials

A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use, compatible with sheet waterproofing.

B. Primer: Liquid primer recommended for substrate by manufacturer of sheet waterproofing material.

C. Surface Conditioner: Liquid, surface conditioner recommended for substrate by manufacturer of sheet waterproofing material.

D. Substrate Patching Membrane: Low-viscosity, two-component, asphalt-modified coating.

E. Sheet Strips: Self-adhering, rubberized-asphalt sheet strips of same material and thickness as sheet waterproofing.

F. Mastic, Adhesives, and Tape: Liquid mastic and adhesives, and adhesive tapes recommended by waterproofing manufacturer.

G. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch thick, predrilled at 9-inch centers.

H. Pipe Penetration Seal: Link Seal modular seal Model C or L, or approved equal.

2.3 Protection Mat

A. Provide 14 oz. protection mat with high strength and puncture resistance.

1. Subject to requirements, provide products by Tremco Inc., or equal.

2. Physical Properties:

   a. Thickness: 100 mills; ASTM D 1777.
   b. Puncture: 110 lbs; ASTM D 4833.
   c. Water Permeability: 0.56 cm/sec-l; ASTM D 4491.

PART 3 - Execution

3.1 Examination

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements and other conditions affecting performance.
1. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
2. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263. Test substrate for moisture content. Provide written statement from waterproofing manufacturer on letterhead stating that moisture content of substrate is acceptable.
3. Test for pH levels and provide written statement on waterproofing manufacturer/s letterhead that pH levels are acceptable and meet warranty requirements.
4. Assure that a solid monolithic substrate is provided in all areas to receive membrane.
5. Verify that substrate is complete and that all work that will penetrate waterproofing is complete and rigidly installed. Verify locations of waterproofing termination.
6. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with installation indicates acceptance of conditions by contractor.

3.2 Preparation

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
B. Coordinate work in the vicinity of waterproofing to ensure proper conditions for installing the waterproofing system and to prevent damage to waterproofing after installation.
C. Surface preparation and detailing procedures shall be in accordance with this Specification and the Drawings. Comply with waterproofing manufacturer’s written instructions except where more stringent requirements are indicated or specified.
D. Lay out project to determine and anticipate conditions prior to start of work. Note termination and penetration conditions to determine methods for creating a waterproof envelope. Where below-grade waterproofing extends to grade, verify that other waterproofing provides for substrate continuing above grade.
E. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
F. Remove grease, oil, bitumen, form-release agents, paints, layout marks, curing compounds, and other penetrating contaminants or film-forming coatings from concrete. Provide a clean concrete surface for waterproofing. Abrasive blast clean concrete surfaces uniformly to expose top surface of fine aggregate according to ASTM D 4259 with a self-contained, recirculating, blast-cleaning apparatus. Remove surface material to provide a sound surface free of laitance, glaze, efflorescence, curing compounds, concrete hardeners, or form-release agents. Remove remaining loose material and clean surfaces according to ASTM D 4258.
G. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, pits, holes, form holes, and other voids.
H. Prepare, fill, prime, and treat joints and cracks in substrates per waterproofing manufacturer’s recommendations. Remove dust and dirt from joints and cracks according to ASTM D 4258.
I. Bridge and cover expansion joints and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips as recommended by waterproofing manufacturer.
J. Prepare, prime, and treat inside and outside corners according to ASTM D 6135 and per waterproofing manufacturer’s recommendation.
K. Fill and cant all horizontal and vertical inside corners with mastic.

L. Prepare, treat, and seal vertical and horizontal surfaces at terminations and all penetrations through waterproofing and at drains and protrusions according to ASTM D 6135 and per waterproofing manufacturer’s recommendation.

3.3 **Self-Adhered Sheet Waterproofing Vertical Application**

A. Install modified bituminous sheets horizontally according to waterproofing manufacturer's written instructions and according to recommendations in ASTM D 6135.

B. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.

C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 4-inch-minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure watertight installation. Apply sheets in a manner to fully adhere the entire surface of the sheet without wrinkles, air bubbles and pockets, sags and kinks. When ambient and substrate temperatures range between 25° and 40° F, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60° F.

D. Apply sheets from low point to high point overlapping lower sheet with upper sheet in shingles fashion, to ensure that laps shed water. Apply sheets so that vertical end laps are staggered and are a minimum 4 feet from other end laps.

E. Apply continuous sheets over treated substrate cracks, construction, and contraction joints. Do not allow lapped joints of waterproofing to fall on substrate joints and cracks.

F. Seal exposed edges of sheets at terminations not concealed by metal counterflashings or ending in reglets, with mastic.

G. Install sheet waterproofing accessory materials and flashings to properly lap and shed water.

H. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 12 inches beyond repaired areas in all directions.

3.4 **Drainage Composite Installation**

A. Install protection mat over installed waterproofing membrane immediately. Place and secure protection mat according to manufacturer's written instructions as soon as membrane adhesives have cured. Use mechanical fasteners that do not penetrate waterproofing. Lap edges and ends of protection mat 2 inches to maintain continuity. Protect installed protection mat sheets during subsequent construction.

3.5 **Field Quality Control**

A. Engage waterproofing membrane manufacturer qualified field representative to inspect substrate conditions; surface preparation; membrane application, flashings, protection, and drainage components; and to furnish daily reports to Architect.

B. Correct deficiencies in or remove sheet waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
C. Perform additional testing and inspecting, at contractor’s expense, to determine compliance of replaced or additional work with specified requirements.

3.6 Protection and Cleaning

A. Do not permit foot or vehicular traffic on unprotected membrane.

B. Protect waterproofing from damage and wear during remainder of construction period.

C. Protect installed drainage composite, waterproofing, and flashings from damage due to direct sunlight, UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where composite will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation. Do not allow installed waterproofing membranes, flashings, or drainage composite to be exposed to UV light or direct sunlight for more than 15 calendar days.

D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07131
SECTION 07271 – Building Underlayments

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 04810 “Concrete Masonry Units.”
2. Section 07131 “Self-Adhering Sheet Waterproofing.”
3. Section 07620 “Sheet Metal Flashing and Trim.”
4. Section 07920 “Sealants.”

1.2 Definitions

A. Building Paper: Flexible polyolefin sheeting placed over base substrate sheathing to assist in creating a weather tight enclosure under building finishes.

B. Self Adhered Flashing: Flexible bituminous sheet product which can fully adhere to substrate surfaces.

1.3 Performance Requirements

A. Building underlayments shall be capable of performing as a continuous weather resistant air barrier and as a liquid-water drainage plane, flashed to discharge water or incidental condensation to the exterior. Building underlayment assemblies shall be capable of accommodating substrate movement. Building underlayments shall be capable of sealing; expansion and control joints, construction material changes, penetrations, fasteners, and transitions at perimeter conditions, without deterioration.

B. Building Paper:

1. ASTM E 2357: Air leakage not to exceed .04 cfm/sq. ft. at 1.57 psf/25 mph.
2. ASTM E 96: Water vapor transmission 28 perm or better.
3. ASTM E 331: Water resistance, pass at 15 minutes at 27 Pa/15 mph.
9. Maximum UV exposure time 6 months.

C. Self Adhered Flashing Materials:

1. ASTM D 412: Elongation 500 E.
2. ASTM D 412: Tensile Strength 975 psi.
3. ASTM E 96: Moisture vapor transmission rate .01 perms.
5. ASTM E 331: Water resistance, pass at 15 minutes at 27 Pa/15 mph.
6. Maximum UV exposure time 30 days.
D. Coordinate with Section 07920 “Sealants” and appropriate trades and verify that underlayments are compatible with sealants being provided.

1.4 Submittals

A. Product Data: Submit product data for each product required. Include manufacturer's written instructions for evaluating, preparing, treating substrates; written installation instructions; technical data; and tested physical and performance properties.

B. Shop Drawings: Show details for expansion and crack control joints, reveals, door and window flashings, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction. Show how building underlayments fit and lap within substrate, metal flashings, openings, and joint assemblies.

C. Provide 12 x 12 samples for each type of underlayment material.

D. Build mockup of exterior wall assembly of sufficient size to allow layering of components to show all elements of assemblies and to allow required testing, but in no case is mockup to be less than 12 feet x 12 feet. Incorporate backup wall construction, external cladding, sill assemblies, finishes, copings, and flashings to demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of underlayments. Show treatment of expansion, crack control joints and reveals and lath installation. Include metal flashing and screed interfaces. Layer components to show all elements of assembly.

1. Coordinate construction time of mockup to permit inspection by Owner’s testing agency of underlayments before external cladding is installed.
2. Include roof wall junctions, building corner conditions (inside and outside) and foundation wall intersection. Show all laps with roofing and waterproofing membranes.
3. If Architect or manufacturer determines mockups do not comply with requirements, reconstruct mockup until mockup is approved.
4. Approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.
5. Do not proceed with underlayment work until mockup is approved by Architect and manufacturer. Construct all parts of mockup including substrates, backing, and supports from identical material that will be used in the work.
6. Coordinate with necessary trades to construct mockup to reflect actual construction. Obtain material, services and other trades to participate in mockup construction so mockup reflects construction and conditions proposed in finished work in all respects, including but not limited to, supporting structure, substrates, flashing, attachment, backings, opening and finished materials. Provide materials identical to materials to be used in actual work.
7. Architect’s review and comments or no-comment of mockup does not relieve contractor from fulfilling requirements of Contract Documents. Deviations from Contract requirements in completed work whether noted or not noted in mockup are contractor’s responsibility and must be corrected at no additional cost to Owner.

E. Submit manufacturer’s statement on manufacturer’s letterhead indicating that underlayment application as constructed in mockup will satisfy warranty requested.

1.5 Warranties

A. Provide a 10 year warranty for materials and installation signed by contractor, installer and manufacturer.

B. Contractor is responsible for researching, coordinating and assembling a completely warrantable system where all components are acceptable to manufacturer, compatible and satisfy all warranty requirements.
1.6  Quality Assurance

A. Provide an applicator with a minimum 5 years documented successful experience in applying underlayment materials similar in material, design, and extent to those indicated for this Project. Applicator shall provide supervision and workers who are thoroughly trained and experienced in the handling and application of specified underlayments.

B. Building underlayment installer shall be an ABAA licensed contractor that employs certified and registered installers and complies with ABAA Quality Assurance Program.

C. Obtain building paper materials and accessories from a single manufacturer.

D. Obtain self adhered flashing materials and accessories from a single manufacturer.

E. Assure that all underlayment materials and accessories are compatible with each other.

F. Hold a pre-installation meeting at least 2 weeks prior to installation at the Project site with all parties concerned including manufacturer and Architect and discuss the following:

1. Sequencing of underlayment installation. Review building underlayment requirements including surface preparation, substrate conditions and pretreatment, minimum substrate curing period, required weather conditions, special details and sheet flashings, mockups, installation procedures, sequence of installation, testing and inspecting procedures, and protection and repairs.

2. Review submittals and approved mockup.

3. Review special details and flashing conditions. Review requirements for installation sequencing of underlayments, flashings, and other materials and assemblies required for a complete watertight assembly.

4. Interface with other trades. Include installers of other construction connecting to and lapping with building underlayments, such as but not limited to, exterior finishes, roofing, waterproofing, architectural precast concrete, masonry, plaster work, windows, glazed curtain walls, door frames, and sealants.

5. Timing of building underlayment installation, subsequent material application and required maximum UV exposure time.

6. Distribute meeting minutes to Owner, Architect, Inspector, meeting attendees and other interested parties.

7. Provide 7 days advance notice of meeting.

8. Adjust installation methods as necessary to satisfy project requirements and manufacturer’s warranty at no additional time or cost to Owner.

G. Do not use building underlayments below grade, as roofing membranes or as horizontal waterproofing membranes.

1.7  Delivery, Storage, and Handling

A. Deliver and store materials in their original undamaged, unopened packages with identification labels intact, in a clean, dry, protected location and within temperature range required by underlayment manufacturers. Do not remove from boxes or containers until ready to use.

B. Remove and replace materials that cannot be applied within their stated shelf life.

C. Store underlayments according to manufacturer’s written instructions. Store rolls on ends, secured to prevent tipping.

D. Protect stored materials from direct sunlight and UV exposure.
E. Do not expose materials to flame or other ignition sources.

F. Time delivery to Project site with installation date to minimize storage time and undue sunlight and UV exposure.

G. Remove damaged material from the site and dispose of legally.

1.8 Project Conditions

A. Apply building underlayments within the range of ambient and substrate temperatures recommended in writing by underlayment manufacturer. Protect substrates from environmental conditions that affect performance of underlayments. Do not apply underlayments to a damp or wet substrate, or during wet conditions, or to surfaces that are outside the temperature range required by manufacturer’s written recommendations and warranty requirements.

B. Provide solid backing behind all underlayments and flashings.

PART 2 - Products

2.1 Building Paper

A. Subject to requirements, provide products by, or equal to, the following:

1. DuPont, Tyvek, Commercial Wrap D.
2. Reeman, Inc., Typak
3. Raven Industries, Inc., Rufco Wrap
4. Pactiv Building Products, Green Guard Max.

B. High performance non-woven, breathable polyolefin that performs as both a continuous vapor retarding air barrier and as a liquid – water drainage plane.

1. Weight: 2.4 oz./yd.² minimum ASTM D 3776.
2. Thickness: 0.018 inch minimum ASTM D 1777.
3. Tensile Strength: 40 pounds per inch minimum in any direction ASTM D 882.

2.2 Self Adhered Flashing

A. Subject to requirements, provide products by one of, or equal to, the following:

1. DuPont Straight Flash.
2. DuPont Straight Flash VF-Dual Sided Adhesive.
4. Protecto Wrap BT25XL.
5. Tremco EXOAIR 110.

B. Provide self adhering rubberized asphalt laminated to a high density polyethylene film with a release liner, total thickness 30 mils minimum.

2.3 Accessory Materials

A. Provide all auxiliary and accessory materials as recommended in writing by underlayment manufacturer for a complete installation at no additional cost to Owner; such as but not limited to, 3-inch-wide minimum joint and seam sealing tape, primers, compatible sealants, adhesives, fasteners, mastics,
counter-flashing strip, patching compounds, through wall penetration flashings, and all accessories required for a complete installation. Verify per compatibility with substrates and underlayments. Do not use solvent based sealants, tapes and mastics.

PART 3 - Execution

3.1 Examination

A. Examine substrates, areas, and conditions, with installer and Manufacturer present, for compliance with requirements, warranties, and other conditions affecting performance.

1. Verify that surfaces to received underlayments are clean, dry and flat.
2. Verify that substrates are sound and free of oil, grease, dirt, dust, excess mortar, or other contaminants. Verify that substrate conditions are in accordance with manufacturer’s recommended tolerances prior to construction.
3. Verify that concrete has cured and aged for minimum time period recommended in writing by underlayment manufacturer. Perform moisture tests for capillary moisture by plastic sheet method according to ASTM D 4263 to verify that moisture content is within manufacturer’s acceptable limits.
4. Verify that masonry joints are flush and completely filled with mortar.
5. Verify that solid backing occurs behind all underlayments and flashings.
6. Proceed with installation only after unsatisfactory conditions have been corrected. Provide written RFI to Architect if substrates and building underlayments are incompatible. Proceeding with building underlayment installation constitutes Contractor’s acceptance of substrate conditions and that substrate conditions satisfy underlayment manufacturer’s warranty requirements.

3.2 Surface Preparation

A. Clean, prepare, and treat substrate according to building underlayment manufacturer’s written instructions. Provide clean, dust-free, and dry substrate for air barrier application.

B. Mask off adjoining surfaces not covered by underlayments to prevent spillage and overspray of primers and mastics, from affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or form coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching cementitious compound. Provide a smooth continuous surface for bonding of underlayments.

E. Remove excess mortar from masonry ties and other obstructions.

F. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.

G. At changes in substrate plane, apply sealant or mastic beads and tool to form a smooth transition from one plane to another. Confirm with underlayment manufacturer that sealants and mastics are compatible with underlayments.

H. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.
I. Provide continuous solid backing and surfaces for all underlayments and flashings.

3.3 General Underlayment Installation

A. Install underlayments in a shingled manner with upper layers overlapping lower layers to shed water without interruption or interception by exposed edges. Integrate lapping of underlayments with sheet metal flashings, roofing, and waterproofing membranes to properly shed water. Use fasteners recommended in writing by underlayment manufacturer for type of base substrate. Fasten building paper through to solid wood sheeting or through sheeting to framing.

B. Regardless of manufacturer’s stated material capability, do not allow underlayments to be exposed to direct sunlight and UV rays for more than 30 days.

C. All primers, sealants, mastics, sealing tapes and other auxiliary materials must be completely compatible with underlayments and substrates. Verify compatibility of all materials with manufacturer. Coordinate with other trades who may be applying sealants, mastics and other materials in direct contact with underlayments to communicate and confirm compatibility requirements.

D. If not treated with fire stop materials, completely fill all gaps in perimeter frame surfaces of all through wall penetrations with non-expanding foam prior to application of underlayments.

E. Apply joint sealants forming part of underlayment assembly within manufacturer’s recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Do not cover underlayments until tested and inspected by Owner’s testing agency.

G. Install underlayments and auxiliary materials to form a complete seal and to maintain a continuous, shingled vapor and waterproof barrier.

H. Coordinate and obtain underlayment manufacturer’s periodic site observation during underlayment installation and assembly.

I. Correct deficiencies or remove underlayments that do not comply with requirements; repair substrates and reapply underlayments, at no additional cost to Owner.

J. Coordinate installation of underlayments with work of other trades including doors, windows, window frames, curtain walls and other penetrations.

3.4 Self Adhered Underlayment Installation

A. Perform adhesion tests to assure that primers and self adhered underlayments will adhere to substrates in a manner that satisfies underlayment manufacturer and required warranties.

B. Install self adhered underlayment according to underlayment manufacturer’s written instructions and according to recommendations in ASTM D 6135.

C. Prepare, prime and treat inside and outside corners according to ASTM D 6135. Install self adhered underlayment centered over vertical inside and outside corners. Install ¾-inch fillets of mastic on horizontal inside corners.

D. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations with termination mastic and according to ASTM D 6135.
E. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by self adhered underlayment in ½ day. Reprime areas exposed for more than 24 hours. Prime sheathing with number of prime coats required to achieve full bond, with adequate drying time between coats at no additional cost to Owner. Primed surfaces must be free of runs, puddles or excessive primer.

F. Apply and firmly adhere self adhered underlayments with full contact to substrate so surface of underlayment is flat without wrinkles, ridges, bumps, air pockets, and is completely adhered to substrate. After flashing has been applied roll all surfaces of flashing with a hard rubber roller to ensure that flashing is completely adhered to substrate. Accurately align sheets and maintain a uniform 3-inch-minimum lap widths and end laps. Overlap and seal seams and stagger end laps a minimum of 12 inches or 1 stud bay whichever is greater. End laps must always occur completely over solid backing.

1. Apply sheets in a shingled manner to shed water without interception by any exposed sheet edges.
2. Roll sheets firmly to enhance adhesion to substrate.

G. Provide self adhered underlayments continuously behind all control joints, anchors, reglets, flashings, parapet and curb copings, and reveals.

H. Provide self adhered underlayment at all through wall penetrations. Lap underlayment onto both surfaces to completely seal penetration.

3.5 Building Paper Installation

A. Install building paper to comply with manufacturer’s written recommendations.

B. Apply building paper horizontally with printed side out, starting at the bottom of the wall where indicated and lap each upper level over the level below with 6-inch laps. Provide 6-inch end laps. Fasten to substrate with staples. Seal all horizontal laps and end laps with recommended sealing tape. Stagger end laps a minimum of 24 inches.

C. Seal top of through-wall flashings to building paper with an additional 6-inch-wide self adhered underlayment strip.

D. Seal all exposed edges, seams, cuts, penetrations, terminations, all horizontal and vertical joints, with sealing tape. Seal all penetrations through building paper air tight.

E. Install two layers of building paper in all areas that are indicated to have building paper.

F. Do not joint building paper at inside and outside corners. Wrap building paper around corners and stagger joints.

G. At end of each working day, seal top edge of membrane to substrate with sealing tape.

H. Repair punctures, voids, and deficient lapped seams in building underlayment. Patch with underlayment and sealing tape, extending 6-inches beyond repaired areas in all directions.

3.6 Field Quality Control

A. Underlayment materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of underlayment system has been achieved throughout the building envelope with no gaps or holes.
2. Continuous backing and structural support of underlayment system has been provided.
3. Site conditions for application temperature and dryness of substrates have been maintained.
4. Maximum exposure time of materials to UV deterioration has not been exceeded.
5. Surfaces have been primed.
6. Laps in sheet materials have complied with the minimum requirements and have been shingled in the correct direction, with no fishmouths.
7. Termination mastic has been applied on cut edges.
8. Self adhered underlayments have been firmly adhered to substrate.
9. Compatible materials have been used.
10. Transitions at changes in direction and structural support at gaps have been provided.
11. Connections between assemblies (membranes and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal.
12. Check that all penetrations have been sealed.

B. Remove and replace deficient underlayment components and retest as specified above.

C. Coordinate with manufacturer’s designated representative and obtain periodic observations of underlayment installation to comply with warranty requirements. Make necessary changes required by manufacturer’s representative to comply with warranty requirements at no additional cost or time to Contract.

3.7 Cleaning and Protection

A. Protect underlayment system from damage during application and remainder of construction period.

1. Protect underlayments from exposure to UV Light and harmful weather exposure as required. Remove and replace underlayments exposed to these conditions for more than time limit specified.
2. Protect underlayments from contact with creosote, uncured coal-tar products, TPO, EPDM, flexible PVC membranes, and sealants not approved by underlayment manufacturer.
3. Protect underlayments from puncture, tearing or other physical damage that would compromise function and warranties.
4. Replace all underlayments damaged by construction activities at no additional cost to Owner.

B. Clean spills, stains, and soiling from adjacent construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07271
SECTION 07620 - Sheet Metal Flashing and Trim

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:
   1. Section 03300 “Cast-in-Place Concrete.”
   2. Section 04810 “Concrete Masonry Units.”
   3. Section 07271 “Building Underlayments.”
   4. Section 09900 “Painting.”

1.2 Performance Requirements

A. Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Fabricate and install flashing and copings capable of resisting wind zone 3 velocity pressures of 46 to 104 lbf/sq. ft., 208-lbf/sq. ft. perimeter uplift force, 312-lbf/sq. ft. corner uplift force, and 104-lbf/sq. ft. outward force according to recommendations in FMG Loss Prevention Data Sheet 1-49.

C. Provide sheet metal flashing and trim that allow for thermal movements resulting from the maximum change (range) in ambient and surface temperatures of 120° F, ambient; 180° F, material surfaces to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

D. Provide sheet metal flashing and trim that do not allow water infiltration to building interior concealed spaces, unoccupied spaces or cavities.

1.3 Submittals

A. Product Data: For each type of product indicated. Include construction details, installation instructions, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show layouts of sheet metal flashing and trim and roof drainage, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:
   1. Identify material, thickness, weight, and finish for each item and location in Project.
   2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
   3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
   4. Details for showing shapes and dimensions of downspout pipes & fittings and for joining, supporting and anchoring downspout pipes and fittings.

C. Samples: For each type of metal and exposed finish required, prepared on samples of size indicated below:
1. **Sheet Metal Flashing**: 12 inches long in shapes, bends and folds indicated. Include fasteners, cleats, clips, closures, and other attachments.

2. **Accessories**: Full size sample.

### 1.4 Quality Assurance

A. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

B. Build mockups to demonstrate aesthetic effects and set quality standards for fabrication and installation. Coordinate to provide flashing integrated with mockups required in other sections of work. Install flashing mockups in a stepped fashion to show all elements of the required installation.

1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
3. Use same materials, in thickness, gage and finishes as required by construction documents.

C. Conduct pre-installation meeting at Project site to comply with requirements in Section 01310 "Project Management and Coordination."

1. Meet with Owner, Architect, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim.
2. Review methods and procedures related to sheet metal flashing and trim.
3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Document commend and decisions, including corrective measures and actions required, and furnish copy of record to each participant.

D. Perform sheet metal work in cooperation with other trades. Where possible, verify size, the location, and placement of miscellaneous sheet metal work prior to fabrication. Coordinate field measurements and Shop Drawings with fabrication and shop assembly.

E. Preassemble items in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

### 1.5 Delivery, Storage, and Handling

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.
1.6 Coordination

A. Coordinate installation of sheet metal flashing and trim, roof drainage and downspouts with interfacing and adjoining construction to provide proper sequencing and a leakproof, secure, and noncorrosive installation.

B. Coordinate sheet metal items in connection with work of other Sections for proper installation, and furnish in sufficient time to avoid delay in construction.

PART 2 - Products

2.1 Sheet Metals

A. Field Painted Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653, G90 coating designation; structural quality, mill phosphatized shop primed.

2.2 Roof Drainage

A. The following products are intended to define minimum design requirements. Other systems meeting or exceeding these minimum requirements are acceptable.


C. Elbows: Rain Trade Corporation, 4”x26ga. 75 degrees Plain Round Elbow

D. Downspout Extension: Rain Trade Corporation, 4”x26ga. Plain Round Downspout


2.3 Miscellaneous Materials

A. Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Do not use fasteners that are corrosive or incompatible with materials joined. Do not use exposed fasteners except where unavoidable.

1. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.


C. Solder for Zinc: ASTM B 32, 60 percent lead and 40 percent tin with low antimony, as recommended by manufacturer.

D. Flux: Standard brand non-corrosive acid-based type.

E. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
2.4 **Fabrication, General**

A. Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.

B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal. Thicknesses indicated are considered minimums and contractor is required to provide heavier gages of material, stiffener, and backing as required to produce flat, true surfaces, free of warping, bending, oil canning, or other distortion, and impart sufficient strength for use indicated.

C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.

1. Seams: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.

D. Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.

E. Provide lapped or bayonet-type expansion provisions in the Work.

F. Conceal fasteners and expansion provisions wherever possible on sheet metal flashing and trim, unless otherwise indicated.

G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal. Provide attachment devised in thicknesses as recommended by SMACNA's "Architectural Sheet Metal Manual" for application but not less than thickness of metal being secured.

H. Form sheet metal items in maximum lengths and keep joints to a minimum. Do not expose cut edges of sheet metal except as shown. Fold back exposed ends of unsupported sheet metal to form a 1/2-inch-wide hem on the concealed side, or ease exposed edges with backing to a radius of approximately 1/32-inch. Form items with flat, flush surfaces, true to line and level and without cracking and grain separation at bends.

I. Continuously weld all shop joints and seams except where other methods of joining are indicated; grind welds smooth and flush on exposed surfaces. Comply with AWS and other metal authorities.

J. Use filler metals and welding procedures which will blend with and match the color of sheet metal being joined and will avoid discoloration at welds.

K. Provide straps, plates, and brackets as required for support and anchorage of fabricated items to adjoining work.

L. Reinforce sheet metal items as required for attachment and support of hinges, catches, and other hardware for operating components.

M. Fabricate items to avoid distortion and overstressing of fastenings due to expansion and contraction. Provide expansion joints where necessary in continuous runs of sheet metal, constructed watertight and
spaced 30-feet apart maximum. Lock and solder corners and blind hem exposed edges. Make joints with 4-inch lap and solder unless otherwise shown or specified. Fill single lock seams with sealant where soldering is infeasible. Run flanges 4-inches minimum onto roof and wall surfaces. Fabricate sheet metal items in nominal 8-foot lengths unless otherwise shown or specified.

N. All soldered joints shall be continuous. Do soldering slowly, immediately after application of flux, seams showing evenly flowed solder. Clean and neutralize finished soldering.

2.5 Roof Drainage Fabrications

A. Provide gutters as indicated, complete with end pieces and mitered corner pieces, outlet tubes, and other accessories as required for a complete and functional installation. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.

1. Expansion Joints: Lap type.

B. Sheet Metal Hanger Strap: Galvanized Steel, 22 gauge.

2.6 Flashings

A. Base Flashing: Fold the exposed edges of counterflashings 1/2-inch. Provide end laps in counterflashings not less than 3 inches and make weathertight with single component, not sag silicone sealant. Lengths of metal counterflashings shall not exceed 10 feet. Form the flashings to the required shapes before installation. Factory form corners not less than 12 inches from the angle. Secure the flashings in the reglets with soft metal wedges (no lead) and space not more than 18 inches apart; short runs, place wedges closer together. Fill sealant-type reglets or raked joints which receive counterflashing with sealant compound. Turn up the concealed edge of counterflashings built into masonry or concrete walls not less than 1/4-inch and extend not less than 2 inches into the walls. Install counterflashing to provide a spring action against base flashing. Fabricate from the following material:


B. Counterflashing: Fold the exposed edges of counterflashings 1/2-inch. Provide end laps in counterflashings not less than 3 inches and make weathertight with single component, not sag silicone sealant. Lengths of metal counterflashings shall not exceed 10 feet. Form the flashings to the required shapes before installation. Factory form corners not less than 12 inches from the angle. Secure the flashings in the reglets with soft metal wedges (no lead) and space not more than 18 inches apart; short runs, place wedges closer together. Fill sealant-type reglets or raked joints which receive counterflashing with sealant compound. Turn up the concealed edge of counterflashings built into masonry or concrete walls not less than 1/4-inch and extend not less than 2 inches into the walls. Install counterflashing to provide a spring action against base flashing. Fabricate from the following material:


2.7 Finishes

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
PART 3 - Execution

3.1 Examination

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with installation indicates Contractor’s acceptance of substrate condition.

3.2 Installation, General

A. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system. Torch cutting of sheet metal flashing and trim is not permitted. Locate and place sheet metal items plumb, level, true to line and in alignment with adjacent work.

B. Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating.

1. Coat side of uncoated aluminum and lead sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.

2. Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet.


4. At exposed conditions do not allow bituminous coating and roofing cement to be exposed.

C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

D. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.

E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

F. Provide for thermal expansion and contraction of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.

G. Use screw-type fasteners of sizes that will penetrate substrate not less than 3/4-inch. Use concealed fasteners wherever possible.


H. Seal joints with elastomeric sealant as required for watertight construction.

1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40° and 70° F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40° F.
2. Prepare joints and apply sealants to comply with requirements in Section 07920 "Sealants."

   I. Soldered Field Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches except where pretinned surface would show in finished work.

      1. Do not solder prepainted, and aluminum sheet.
      2. Pretinning is not required for lead sheet.
      3. Copper Soldering: Tin uncoated copper surfaces at edges of sheets using solder recommended for copper work.
      4. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

   J. Paint surfaces that may become repeatedly wet and in contact with metal with two coats of bituminous coating.

3.3 Roof Drainage System Installation

   A. Install complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof drainage system with roof perimeter flashing.

   B. Join hanging gutter sections with riveted and soldered joints. Provide for thermal expansion. Attach gutters at eave firmly anchored and spaced not more than 30 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.

      1. Loosely lock gutter hangers to front gutter bead and anchor to eave or fascia.
      2. Anchor back of gutter that extends behind eave flashing with fasteners spaced not more than 24 inches apart.
      3. Install expansion joints not exceeding 50 feet apart. Install expansion joint caps.

   C. Provide fittings and offsets of same materials as downspout pipe to maneuver gutter around obstructions and building surface offsets.

3.4 Wall Flashing Installation

   A. Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated.

3.5 Cleaning and Protection

   A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

   B. Clean and neutralize flux materials. Clean off excess solder and sealants.

   C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.

   D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07620
SECTION 07920 - Sealants

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 02764 “Pavement Joint Sealants.”
2. Section 03300 “Cast-in-Place Concrete.”
3. Section 04810 “Concrete Masonry Units.”
4. Section 07271 “Building Underlayments.”
5. Section 07620 “Sheet Metal Flashing and Trim.”

1.2 Definitions

A. Type S: Products finished prepackaged which no job-site mixing is required.

B. Grade P: Products having sufficient flow to fill joints in horizontal surfaces and remain level and smooth at temperatures as low as 40° F.

C. Grade NS: Nonsag sealant that permits application in joints on vertical surfaces without sagging or slumping when applied at temperatures between 40° F and 122° F.

D. Use T: Classifies sealants designed for joints in surfaces subject to pedestrian and vehicular traffic.

E. Use NT: Classifies sealants designed for nontraffic exposure.

F. Use M, G, A: Refers to sealants which remain adhered, within given parameters, to various standard specimens.

G. Use O: Refers to substrate materials other than M, G, and A.

1.3 Performance Requirements

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates, where indicated and specified.

B. Staining and leaching by sealant or primer will not be acceptable. All stained materials must be cleaned to show no visible evidence of sealant or primer staining or leaching, or removed and replaced. Where doubt about staining exists, test a sample of material in question.

C. Provide sealants that are compatible with all building underlayments, paints, coatings, and waterproofing. Coordinate with work of those sections to determine compatibility. Assure compatibility where multiple types of sealants come in contact with each other.

1.4 Submittals

A. Product Data: For each sealant product indicated.
B. Sample Color Selection: Submit 3-inch-long strips of cured sealants showing the full range of colors available for each product exposed to view. Architect will select colors from manufacturer’s full range of colors including custom colors.

C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in ½-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. SWRI Validation Certificate: Each sealant to be validated by SWRI's Sealant Validation Program.

E. Qualification Data: For installer.

F. Compatibility and Adhesion Test Reports: ASTM C 794, From sealant manufacturer, indicating the following:
   1. Materials forming joint substrates and sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

G. Warranties specified in this Section.

H. Sealant schedule indicating manufacturer, sealant material, product identification, type, grade, class, use classification and joint backing for each sealant system and location on project.

I. Submit manufacturer’s written mixing application instructions and details, covering all conditions of application.

J. Submit certification that sealant installation complies with requirements of Title 24, CBC, Section 5317 for air infiltration limitations.

1.5 Quality Assurance

A. Provide sealant manufacturer's authorized installer who is approved or licensed for installation of elastomeric sealants required for this Project, and who has completed 5 years of joint sealant applications similar in materials, scope and extent to the Work indicated.

B. Obtain each type of joint sealant through one source from a single manufacturer.

C. Comply with the following:

D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
   1. Locate test joints on Project as directed by Architect.
   2. Conduct field tests for each application indicated below:
      a. Each type of elastomeric sealant and joint substrate indicated.
      b. Each type of nonelastomeric sealant and joint substrate indicated.
   3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with sealant manufacturer's technical representative present. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

5. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained. Submit written report of testing to Owner, Architect and Inspector of Record.

6. Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing. Remove failing sealants in their entirety.

E. Build mockups incorporating sealant joints, to verify selections made and to demonstrate aesthetic effects and set quality standards for materials and execution. Coordinate sealant requirements for mock-ups required for work of other sections.

F. Conduct pre-installation meeting at Project site and review the following:
1. Submittals and sealant schedule.
2. Surface condition, weather conditions and substrate preparation.
3. Sequencing of installation and coordination with Work of other trades.
4. Installation methods and requirements.
5. Protection of Work.

1.6 Project Conditions

A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40° F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
5. When cementitious substrates are not thoroughly cured and dry.

1.7 Warranty

A. Special Installer’s Warranty: Installer's standard form in which installer agrees to repair or replace elastomeric joint sealants that do not comply with performance requirements specified in this Section 5 (five) years.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance requirements specified in this Section within 5 (five) years.

C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.
D. Furnish a written warranty against all defects in caulking and sealant materials for 5 years and defects in workmanship for 2 years, covering the following specific conditions, without limitation:

1. Water leakage through sealed joints.
2. Adhesive or cohesive failure of sealant.
3. Staining of adjacent surfaces caused by migration of sealant or primer.
5. Chalking or visible color changes of cured sealants.

1.8 Delivery, Storage and Handling

A. Deliver and store packaged materials in manufacturer’s original unopened containers with seals unbroken and manufacturer’s labels intact until time of use. Store materials off ground and under cover to prevent damage or contamination to materials by water, freezing, foreign matter or other causes. Promptly remove from site any materials which show evidence of damage or which shelf life has expired, and immediately make all replacements necessary at no additional cost to Owner.

PART 2 - Products

2.1 Manufacturers

A. Subject to requirements, provide products by one of, or equal to, the following:

1. Dow Corning Corporation.
2. General Electric Co.
3. Pecora Corporation.
4. Sonneborn Building Products Division / ChemRex, Inc.
5. Tremco, Inc.

2.2 Materials, General

A. Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience. Provide joint sealants that are compatible with all flashings and underlayments.

B. Provide sealants and sealant primers that comply with VOC content requirements by authorities having jurisdiction.

C. Colors of Exposed Sealants: As selected by Architect from manufacturer’s full range of colors including custom colors.

D. Elastomeric sealants shall be nonstaining to all substrates. Provide products that have undergone testing according to ASTM C 1248 and have not stained joint substrates indicated for Project.

E. In wet areas provide mildew resistant sealants.

F. Provide products that are permanently flexible.

G. Provide heat resistant sealant in areas affected by a rise in temperature.

H. All sealants in horizontal walking/pedestrian traffic areas shall be traffic bearing, non tracking with a stone hardness of 40-50.
I. Furnish sealants that remain durable when subjected to intense actinic (ultraviolet) radiation.

J. Furnish sealants that are color fast and resist color change.

2.3 Backing

A. Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C closed-cell, mildew resistant, non-migratory, non-outgassing, non-staining, and compatible with substrates and sealants material with a surface skin as recommended in writing by sealant manufacturer, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Provide polyethylene tape for joints too shallow to allow use of foam rod.

C. Provide polyethylene bond breaker adhesive tape or other plastic tape recommended in writing by sealant manufacturer for preventing sealant from adhering to joint surfaces where such adhesion would result in sealant failure.

2.4 Miscellaneous Materials

A. Provide primers recommended in writing by sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction sealant-substrate tests and field tests.

B. Provide cleaners for surfaces, acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Provide nonstaining, nonabsorbent masking tape compatible with joint sealants and surfaces adjacent to joints.

D. Cleaning Cloths: Clean soft absorbent, lint free, cloths.

PART 3 - Execution

3.1 Examination

A. Examine joints indicated to receive joint sealants, with installer and sealant manufacturer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting sealant performance and warranty requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with installation constitutes acceptance of substrates and conditions by Contractor, Installer and Manufacturer.

3.2 General

A. Prepare substrates and apply sealant in accordance with manufacturer’s written instructions.

B. Handle and apply sealant materials in a manner that complies with regulations of jurisdictions having authority.
C. Do not use sealants in below grade applications, in areas of water immersion or on materials bleeding oils, plasticizers and solvents.

D. When applying sealants to metal and zinc coated substrates verify that sealant will not cause discoloration or corrosion.

E. Allow sealants to fully cure before concealing within elements of construction.

F. Complete horizontal joints prior to vertical joints. Lap vertical joint sealant over and onto horizontal sealant.

3.3 Preparation

A. Rake and thoroughly clean substrates immediately before installing joint sealants to comply with sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), curing compounds, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, frost, soil, or other sealing compounds.

2. Clean porous joint substrate surfaces by bead or water blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Make sure that apparently clean surfaces are not covered with a thin film of dust. Clean alkaline from surface of concrete or CMU.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Do not flood surfaces with cleaners and solvents. Do not allow solvent film to accumulate on surfaces.

5. Conform to written instructions from sealant manufacturer where sealants are required to be applied over painted, lacquered, or waterproofed surfaces, or surfaces which have been treated with water-repellent or other coatings.

B. Prime joint substrates, where recommended in writing by sealant manufacturer and based on preconstruction sealant-substrate tests or prior experience. Apply primer to comply with sealant manufacturer's written instructions. Confine primers to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Use masking tape to create neat sealant lines and where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Do not allow masking tape to touch clean surfaces to which sealant will adhere. Remove tape immediately after tooling without disturbing joint seal.

D. Joint spaces and surfaces shall be thoroughly dry before installation of sealant materials. Do not install sealant material during or after rain or fog.

3.4 Installation of Sealants

A. Comply with sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. For general sealant installation comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
C. Install sealant backings to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates in continuous ribbons without gaps or air pockets.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Do not allow sealants to overflow confines of joint or onto adjoining Work.
4. Sealant shall be bonded to the 2 opposite sides of joint only. Apply bond-breaker between sealant and back of joints where space for back-up material does not exist.
5. Apply sealant under sufficient pressure to fill voids.
6. Install sealant in manner to provide uniform, continuous ribbons without gaps or air pockets, and with complete wetting of the joint surfaces equally on opposite sides. Fill joints to slightly concave surface just below adjacent surfaces.
7. Flashing and parapet copings shall be double caulked at all joints exposed to weather.
8. Do not allow sealants or other compounds to overflow, spill or migrate into voids of adjacent construction.

F. Immediately after sealant application and before skimming or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Tool sealant within time limits recommended in writing by sealant manufacturer in one continuous stroke within 10 minutes of application to a slightly concave joint configuration slightly below adjoining surfaces per Figure 5A in ASTM C 1193, unless otherwise indicated.
4. Where sealant joints occur between horizontal and vertical surfaces fill joint to form a slight cove so that joint will not trap and pool moisture and dirt.
5. Use masking tape to protect surfaces adjacent to recessed tooled joints.
6. Remove masking tape immediately after tooling and before sealant skin forms (within 5 – 10 minutes.)

3.5 Curing

A. Cure sealants in accordance with sealant manufacturer’s printed instructions to obtain high early bond strength, internal cohesive strength and durability.

3.6 Cleaning
A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and that do not adversely affect substrates. Do not allow cleaning materials or solutions to come in contact with joint sealant proper. Restore all finishes to original condition. If surfaces adjoining joints are stained and cleaning is not acceptable, remove the affected work and provide new work as directed and approved, at no additional cost to Owner.

3.7 Protection

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.8 Sealant Schedule

<table>
<thead>
<tr>
<th>Application</th>
<th>Sealant Description</th>
<th>Type</th>
<th>Grade</th>
<th>Class</th>
<th>Exposure Use</th>
<th>Substrate Use</th>
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<tbody>
<tr>
<td>Exterior joints in unit masonry</td>
<td>Single component neutral curing silicone sealant</td>
<td>S</td>
<td>NS</td>
<td>25</td>
<td>NT</td>
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</tbody>
</table>

END OF SECTION 07920
SECTION 09220 – Exterior Plaster

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Section 07920 “Sealants.”

1.2 Submittals

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show locations, dimensions and layout of control joints including plans, elevations, details of components, and attachments to other work.

C. Samples for Verification: For each type of color and texture indicated; 12 x 12 inches, and prepared on rigid backing. Provide 12 inch long sample of each type of metal trim.

1.3 Quality Assurance

A. Mockups: Before plastering, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Install mockups for each type of finish indicated.

2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

3. Install mockups in a layered fashion to show all parts of the assembly including lath and fasteners, edge moldings, reveals, control joints, jointing around openings, underlayments, flashings and sealants.

B. Conduct pre-installation meeting at Project site to comply with requirements in Section 01310 "Project Management and Coordination."

C. Comply with the Technical Services Information Bulletin (TSIB).

D. Comply with the California Lathing and Plastering Contractor’s Association.

E. Provide installer with 5 years minimum documented experience in installing and applying specified products.

1.4 Delivery, Storage, and Handling

A. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.
1.5 Project Conditions

A. Comply with ASTM C 926 requirements.

B. Exterior Plasterwork:
   1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
   2. Apply plaster when ambient temperature is greater than 40° F.
   3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.

C. Factory-Prepared Finishes: Comply with manufacturer's written recommendations for environmental conditions for applying finishes.

PART 2 - Products

2.1 Metal Lath

   1. Subject to requirements, provide products by one of, or equal to, the following:
      a. Alabama Metal Industries Corporation (AMICO).
      b. California Expanded Metal Products Company (CEMCO).
      c. Unimast, Inc.
      d. Western Metal Lath & Steel Framing Systems.

2.2 Accessories

A. Comply with ASTM C 1063 and ASTM B-69 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required. Provide solid zinc alloy accessories:
   1. Subject to requirements, provide products by one of, or equal to, the following:
      a. Alabama Metal Industries Corporation (AMICO).
      b. California Expanded Metal Products Company (CEMCO).
      c. Western Metal Lath & Steel Framing Systems.
   3. Exterior Cornerbeads: Lath type, solid metal nose edge cornerbead.
   4. Casing Beads: Square-edged style; with expanded flanges.

2.3 Miscellaneous Materials

A. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Bonding Compound: ASTM C 932.

C. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 1063.
2.4 **Plaster Materials**

A. Portland Cement: ASTM C 150, Type I.

B. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.


1. Subject to requirements, provide products by one of, or equal to, the following:
   b. ChemRex; Thoro Stucco.
   c. Omega; ColorTek.

2. Color: As selected by Architect from manufacturer’s full range of colors including custom colors.

2.5 **Plaster Mixes**

A. General: Comply with ASTM C 926 for applications indicated.

B. Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:

1. Portland Cement Mixes:
   a. Scratch Coat: For cementitious material, mix 1 part Portland Cement and 0 to 3/4 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material (sum of separate volumes of each component material).
   b. Brown Coat: For cementitious material, mix 1 part Portland Cement and 0 to 3/4 parts lime. Use 3 to 5 parts aggregate per part of cementitious material (sum of separate volumes of each component material).

C. For factory-prepared finish-coat mixes, comply with manufacturer's written instructions.

**PART 3 - Execution**

3.1 **Examination**

A. Examine areas and substrates, with installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with installation indicates acceptance of substrate conditions by Contractor.

3.2 **Preparation**

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
B. Prepare solid-plaster bases that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.3 Installation, General

A. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.4 Installing Metal Lath

A. Expanded-Metal Lath: Install according to ASTM C 1063.


3.5 Installing Accessories

A. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External Corners:

1. Install lath-type with metal nosing cornerbead at exterior corners.

3.6 Plaster Application

A. Comply with ASTM C 926. Install plaster in 3 coat application; scratch, Brown and finish coats.

1. Do not deviate more than plus or minus ¼ inch in 10 feet from a true plane in finished plaster surfaces, as measured by a10-foot straightedge placed on surface, in any direction.
2. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where casing bead does not terminate plaster at metal frame cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
3. Provide plaster surfaces that are ready to receive field-applied finishes indicated.
4. Apply plaster evenly and uniformly taking care not to allow uneven and irregular troweling at scaffold lines and other obstructions to occur.
5. Mix plaster as needed but do not mix more plaster than can be used in 1 hour.

B. Bonding Compound: Apply on concrete masonry unit and concrete bases.

C. Plaster Finish Coats: Apply to match texture of existing plaster finish.

3.7 Cutting and Patching

A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.8 Cleaning and Protection

A. Remove temporary protection and enclosure of other work. Promptly remove plaster from surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.
SECTION 09900 - Painting

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:
   1. Section 07620 “Sheet Metal Flashing and Trim.”
   2. Section 09220 “Exterior Plaster.”

1.2 Submittals

A. Product Data: For each type of product indicated. Submit a complete list identifying each material by manufacturer’s name, product name and number, including primers, thinners, and coloring agents, together with manufacturers’ catalog data fully describing each material as to contents, recommended usage, and preparation and application methods. Identify surfaces to receive various paint materials. Do not deviate from approved list.

B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
   1. Submit 7 (seven) samples on rigid backing, 8 inches square.
   2. Step coats on samples to show each coat required for system including primer.
   3. Label each coat of each sample with manufacturer and product designation name and number.
   4. Indicating tinting of each coat.
   5. Indicate color of finish coat.
   6. Indicate percentage of gloss for finish coat.

C. Product List: For each product indicated, include the following:
   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

D. Submit manufacturer’s current written instructions and recommended methods of installation including substrate preparation and application rates.

E. Provide 100 S. F. full coat finish mockups on actual project substrates for all paint systems and colors indicated. Simulate finished lighting conditions for review.

F. Submit certificate signed by paint manufacturer showing that all paint products meet all jurisdictional requirements.

1.3 Quality Assurance

A. MPI Standards:
   1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."

B. Apply benchmark mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
   a. Wall Surfaces: Provide actual project paint mockups of at least 100 sq. ft.
   b. Other Items: Architect will designate items or areas required.

2. Apply benchmark mockups after permanent lighting and other environmental services have been activated.

3. Final approval of color selections will be based on benchmark mockups. If preliminary color selections are not approved, apply additional benchmark mockups of additional colors selected by Architect at no added cost to Owner.

C. Provide painter with 10 (ten) years experience in the type of painting applications specified for this project.

D. Coordinate with other trades and Work of other Sections that will be applying primers to Work of those Sections, to ensure compatibility of the total paint system over substrate. Provide information on top coats to ensure use of compatible primers. Omit primer on metal surfaces that have been shop primed.

E. This Section includes painting of all Work, items and surfaces which are normally painted in a building of this type and level of quality, and shall be included in the Contract, whether or not painting of a specific item or surface is specifically called out and included in the drawings or mentioned in specifications.

F. Schedule indications on drawings are general and do not necessarily define the detail requirements. Include all detailed refinements for the required complete finishing of all spaces and rooms.

G. Include painting of all items and assemblies even if color is not yet indicated.

1.4 Delivery, Storage, and Handling

A. Deliver paint materials to project site in manufacturer’s original unopened containers bearing manufacturer’s label, with manufacturer’s name, logo, paint type, sheen, stock number, date of manufacture, contents by volume for pigment solids and vehicle constituents, thinning instructions, color name and number, and shelf life. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45° F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Place oily rags and waste in a metal container and remove from project site daily.

1.5 Project Conditions

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 55° and 95° F. Avoid painting surfaces when exposed to direct sunlight.
B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5° F above the dew point. Do not apply paint in damp or rainy conditions, or to damp or wet surfaces, or when inclement weather is expected within the drying /curing time recommended in writing by manufacturer.

C. Moisture test surfaces prior to applying any paint coatings. Verify that substrates have a maximum moisture content that complies with paint manufacturer’s written recommendations, and in no case higher than 12% maximum moisture content. Submit written test results.

D. Perform pH tests on concrete and masonry substrates. Verify pH levels are within paint manufacturer’s written recommendations, but in no case higher than 10. Submit written test results. If required by paint manufacturer’s written recommendations due to alkali content, apply a surface primer to concrete and masonry, such as Frazee 266 EPOTILT, or approved equal, prior to applying acrylic block filler.

1.6 Extra Materials

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 (five) percent, but not less than 5 gal. (5 gallons) of each material and color applied.

PART 2 - Products

2.1 Manufacturers

A. Subject to requirements, provide products by one of, or equal to, the following:

1. Benjamin Moore & Co.
2. Dunn-Edwards Corporation.
3. Frazee Paint.
5. Vista Paint.

2.2 Paint Materials

A. Provide materials for use within each paint system that are compatible with one another and compatible with substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

B. For each paint system, provide products recommended in writing by topcoat manufacturer for substrate indicated. Provide all products within a paint system including thinners and coloring agents, produced by a single manufacturer including prep coats and primers.

C. Provide products that comply with jurisdictional requirements for VOC content, exclusive of colorants added to a tint base.

D. Provide paint that contains 30-45% solids, minimum.

E. In areas prone to mildew growth such as coastal areas or high humid environments, add a mildewcide to paint materials in quantities recommended in writing by manufacturer.

F. All paints and primers shall be ready mixed in original containers. Factory mix paint materials to correct colors, sheen and consistency for application.
PART 3 - Execution

3.1 Examination

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content, pH levels and other conditions affecting performance of work.

B. Be aware of a condition known as critical lightning. This condition causes shadows that accentuate even the slightest surface variations. A base sealer will provide tooth for succeeding paint coatings but **does not** equalize smoothness of surface texture.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Unsatisfactory surfaces and materials must be corrected by applicable trade before painting.

E. In reconstruction areas where permanent installed items have been removed; provide textures, primers, and coatings as needed to eliminate ghosting and to make surface visually indistinguishable in all respects to adjacent exposed surfaces.

F. Begin coating application only after unsatisfactory conditions have been corrected and are within manufacturer’s written recommendations and requirements of Contract documents. Architect shall be final judge on satisfactory conditions. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

G. Notify Architect with written RFI of any problems anticipated using paint materials specified over substrates indicated or project conditions. Failure to provide written RFI prior to starting painting operations constitutes Contractor’s acceptance of substrates and conditions.

3.2 Preparation

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" for preparation of substrates indicated. Surfaces which cannot be prepared or painted as specified shall be immediately brought to the attention of the Architect in writing. Starting of Work without such written notification constitutes Contractor’s acceptance of substrates and conditions.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
3. Do not apply paint in areas where dust is being generated.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, dust, and incompatible paints and encapsulants.

1. Remove incompatible primers and coatings, and reprime substrate with compatible primers as required to produce paint systems indicated.
2. Prepare all surfaces per manufacturer’s written recommendation and per SSPC SP1, SP2 and SP3 as required by substrate and paint system requirements and as required by Contract documents.
3. Screen, cover or mask adjacent surfaces and materials which are not to receive paint or paint dust. Use appropriate light or medium tack masking tape.

D. Moisture Content: Measure moisture at surfaces using an electronic moisture meter. Do not apply finishes unless moisture is below the following maximums:

1. Exterior Plaster: 15% maximum.
2. Interior Gypsum Wallboard: 12% maximum.

E. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer’s written instructions and Contract documents.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal with a solvent or water based degreaser. To produce clean surfaces, etch cleaned galvanized metal surfaces with an etching solution, such as Jasco Prep and Prime or approved equal before applying primer. Clean acid etch solution completely from surfaces. Prime surface within 3 hours of acid etching.

G. Aluminum and Non-Ferrous Substrates: Remove surface oxidation.

H. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth. Touch-up minor defects with spackle, sand smooth and flush. For non-flat paint sheens, apply a preparation coating such as Frazee 067 Prep Step or approved equal, prior to primer and finish coats. All drywall surfaces to be dust free before painting. Skim coated drywall shall be sealed with sealer recommended in writing by paint manufacturer.

I. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry. Fill hairline cracks with Portland cement patching material. Test and ensure plaster is sufficiently dry to receive paint finish.

J. Existing surfaces to be recoated shall be thoroughly cleaned and prepared as recommended in writing by paint manufacturer. Patches and bare areas shall be spot primed with same primer as required for new surfaces.

K. Surfaces Not Mentioned: Prepare surfaces according to recommendations of the paint manufacturer. Submit preparation steps to Architect for approval.

L. Previously Painted Surfaces: Shall be repaired, prepared and spot primed as required and as recommended by the manufacturer of the paint.

3.3 Application

A. Coating systems specified indicate a minimum number of coats. Do not thin primers or paints; apply paint taken directly from manufacturer’s containers. Apply at coverage rates recommended by paint manufacturer. Apply primer coat as recommended by manufacturer to properly prepare surface for finish coats, one coat minimum. Apply additional primer coats, as necessary, to cover suction spots or unsealed areas, to properly prepare surface for finish coats at no additional cost to Owner. Apply finish coats as recommended by manufacturer, two coats minimum. Apply additional finish coats as needed to completely hide base substrates and achieve the desired consistency, uniformity in finish surface, and sheen at no additional cost to Owner. Apply paint in manner that avoids sags, runs or other evidence of poor workmanship.

B. The numbers given in the following schedule indicate the types of paints required for each surface, identified by their number in white. The actual paint to be applied on each surface shall be the same material in the color or colors as selected, and as approved on submitted samples.
C. Degrees of gloss shown on drawings and herein specified are approximate only. The exact degree of gloss required for each surface will be determined and approved by Architect during paint sample submittal. Materials shall meet the following requirements for degree of gloss when tested according to ASTM D 523, using Gardner Laboratory 60 degree gloss meter after 14 days. Percentage of gloss:

1. Flat or eggshell: 25%-55%.
2. Satin or semi-gloss, 55%-70%.

D. Apply paints according to manufacturer’s written instructions.

1. Flat and eggshell finishes may be rolled or brushed on drywall, plaster and CMU. Spray-apply primer, intermediate and finish coats on all other surfaces.
2. Paint surfaces behind movable equipment same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces. Paint inside surfaces of all non-electrical panels and covers and inside of all non-electrical boxes.

E. Do not paint over dirt, rust, scale, grease, mildew, mold, moisture scuffed surfaces, or conditions detrimental to durable uniform paint film.

F. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. If undercoats or other conditions show through topcoat, apply additional coats until cured film as a uniform paint finish, color, and appearance. Comply with manufacturer’s written recommendations for drying times between succeeding coats.

G. Lightly sand and remove all dust between succeeding coats.

H. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

I. Painting Electrical Work: Paint all exposed items in both interior and exterior conditions including, but not limited to, the following:

1. Uninsulated metal piping and conduit.
2. Uninsulated plastic piping.
3. Pipe hangers and supports.

J. Do not paint over pre-painted mechanical equipment, electrical switch covers, transformers, UL labels, equipment and piping labels. Do not paint over fuseable links or sprinkler heads. Do not paint valve assemblies.

K. Make edges of paint adjoining other material or color clean and sharp with no overlapping.

L. Refinish whole wall where portion of finish is deemed unacceptable by Architect.

M. All materials shall be spray-applied evenly with proper film thickness and free of runs, sags, skips and other defects, except drywall, plaster and CMU with flat or eggshell finish.

N. Hardware, hardware accessories, plates, lighting fixtures and similar items in place shall be removed prior to painting and replaced upon completion of each space.
O. Heating and other equipment adjacent to walls shall be disconnected, using workmen skilled in appropriate trades, and moved to permit wall surfaces to be painted. Following completion of painting, expertly replace and reconnect.

P. Provide wet paint signs, barricades, warning tape and other devices to protect newly finished surfaces. Remove after Work is completed and paint has thoroughly dried.

3.4 Field Quality Control

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint rejected surfaces. Contractor at Owner’s discretion shall remove rejected materials from previously painted surfaces prior to re-preparing surfaces and re-applying approved paint coating systems.

3.5 Cleaning and Protection

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces. Clean and repair blemishes to all surfaces caused by Work of this Section.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Leave surfaces in a first class condition.

E. Runs, sags, misses, holidays, stains and other defects in painted surfaces, including inadequate coverage, mil thickness, inconsistent sheen or uniformity of appearance shall be satisfactorily repainted as necessary. If a portion of a larger area is deemed unsatisfactory, the entire area of surface shall be stripped, re-prepared and re-painted with approved paint systems, at Owner’s discretion.

3.6 Painting Schedule

A. The following paint schedule is based upon Frazee Paint Systems as a basis of design; other paint systems may be proposed on an “approved equal” basis. Architect is sole judge of acceptability of paint system.

B. Interior Paint Systems:

1. Gypsum Board Drywall:

<table>
<thead>
<tr>
<th>Finish</th>
<th>Resin</th>
<th>Coat</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggshell</td>
<td>100% Acrylic</td>
<td>1st Coat</td>
<td>066 Envirokote Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Coat</td>
<td>029 Envirokote EG</td>
</tr>
</tbody>
</table>
### Exterior Paint Systems:

1. **Concrete, Plaster and Fiber Cement Siding:**
<table>
<thead>
<tr>
<th>Finish</th>
<th>Resin</th>
<th>Coat</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Gloss</td>
<td>Acrylic</td>
<td>1st Coat</td>
<td>266P246 Acrylic/Epoxy Tilt-Up Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Coat</td>
<td>131 Endurable SG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd Coat</td>
<td>131 Endurable SG</td>
</tr>
</tbody>
</table>

2. **Wood: Rough Sawn Wood and Siding**
<table>
<thead>
<tr>
<th>Finish</th>
<th>Resin</th>
<th>Coat</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Gloss</td>
<td>100% Acrylic</td>
<td>1st Coat</td>
<td>168 Prime + Plus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Coat</td>
<td>124 Mirro Glide SG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd Coat</td>
<td>124 Mirro Glide SG</td>
</tr>
</tbody>
</table>

3. **Non-Ferrous Metal: Galvanized – Aluminum**
<table>
<thead>
<tr>
<th>Finish</th>
<th>Resin</th>
<th>Coat</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Gloss</td>
<td>100% Acrylic</td>
<td>1st Coat</td>
<td>561 Acrylic Metal Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Coat</td>
<td>124 Mirro Glide SG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd Coat</td>
<td>124 Mirro Glide SG</td>
</tr>
</tbody>
</table>

**END OF SECTION 09900**
SECTION 09963 - Elastomeric Coatings

PART 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and
Division 1 Specification Sections, apply to this Section.

B. Related Sections include:

1. Section 01732 “Selective Demolition.”
2. Section 04810 “Concrete Masonry Units.”
3. Section 07920 “Sealants.”
4. Section 09220 “Exterior Plaster.”

1.2 Performance Requirements

A. Provide elastomeric coatings that comply with performance requirements specified in MPI 113.

B. Provide elastomeric coating systems with the following properties as determined by test methods
indicated:

1. Elongation: Not less than 100 percent with a tensile strength of 200 psi and not less than 88
percent recovery after 1 hour and 90 percent recovery after 24 hours when tested according to
ASTM D 2370 using parameters established by MPI 113.
2. Accelerated Weathering: No cracking, peeling, blistering, chalking, or visual deterioration after
1000 hours when tested according to procedures in ASTM G 155.
3. Low-Temperature Flexibility: No crack formation when tested according to ASTM D 1737.
4. Moisture-Vapor Transmission: Not less than 2.0 perms according to ASTM D 1653.
5. Wind-Driven Rain Resistance: No water penetration according to procedures in FS TT-C-555.
6. Minimum Solids Content by Volume: Not less than 45 percent.

1.3 Submittals

A. Product Data: For each elastomeric coating system specified. Include crack fillers, block fillers, and
primers.

1. Material List: An inclusive list of required coating materials. Indicate each material and cross-
reference the specific coating, finish system, and application. Identify each material by
manufacturer's catalog number and general classification.
2. Manufacturer's Information: Technical information including label analysis and instructions for
handling, storing, and applying each coating material.
3. Certification by elastomeric coating manufacturer that products supplied complies with local VOC
regulations.

B. Samples for Verification: For each color and material to be applied, with texture to simulate actual
conditions, on representative Samples of actual substrate.

1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use
representative colors when preparing Samples for review. Resubmit until required sheen, color,
and texture are achieved.
2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
3. Submit Samples on the following substrates for Architect's review of color and texture only:
   a. Exterior Plaster: 12-inch square Samples of actual substrate material for each color and texture.
   b. Concrete Unit Masonry: 8 by 8 inch rectangular Samples of concrete masonry, with mortar joint in the center, for each color and texture.

C. Qualification Data: For Applicator.

D. Material Certificates: For each elastomeric coating material, signed by manufacturers.

1.4 Quality Assurance

A. Provide a firm or individual experienced in applying elastomeric coating systems similar in material and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Source Limitations: Obtain crack fillers, block fillers, primers, and other undercoat materials from same manufacturer as finish coats.

C. Mockups: Provide full-coat mockups for each type of coating on each substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample submittals.

1. Architect will select one exterior wall surface of each type of substrate to represent surfaces and conditions for application of elastomeric coatings. Prepare samples on at least 100 sq. ft. of wall surface.
2. Apply materials according to requirements for the completed Work. Provide required sheen, color, and texture on each surface.
3. Approved mockups will be used to evaluate coating systems.
5. Final approval of colors will be from mockups.

1.5 Delivery, Storage, and Handling

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:

1. Product name or title of material.
2. Manufacturer's stock number and date of manufacture.
3. Contents by volume, for pigment and vehicle constituents.
4. Thinning instructions (if permitted).
5. Application instructions.
6. Color name and number.
7. Handling instructions and precautions.
8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45° F. Maintain storage containers in a clean condition, free of foreign materials and residue. Protect elastomeric coating materials from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.
1.6 Project Conditions

A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50° and 90° F, unless otherwise permitted by manufacturer's written instructions.

B. Do not apply coatings in rain, fog, or mist; when relative humidity exceeds 85 percent; or at temperatures less than 5° F above the dew point; or to damp or wet surfaces. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before starting or continuing coating operation.

C. Protection:

1. The overspray from coating material can carry considerable distances and care should be taken to do the following:
   a. Post warning signs a minimum of 100 feet from the work area.
   b. Cover all intake vents near the work area.
   c. Set up wind breaks when needed.
   d. Minimize or exclude all personnel not directly involved with coating application.
   e. Provide adequate ventilation.

2. Protect plants, vegetation and animals which might be affected by coating. Use drop cloths or masking as required.

1.7 Warranty

A. Elastomeric Coating Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace elastomeric coatings that fail within specified warranty period. Failures include, but are not limited to, water penetration through the coating.

B. Warranty Period for Elastomeric Coatings: 10 years.

1.8 Extra Materials

A. Furnish extra elastomeric coating materials from same production run as materials applied and in quantities described below. Package materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to Owner. Quantity: Furnish Owner with one extra case of each color and finish of elastomeric coating materials applied.

PART 2 - Products

2.1 Manufacturers

A. Subject to requirements, provide products by the following:

1. NeoGard.

2.2 Elastomeric Coating Materials, General

A. Provide crack fillers, block fillers, primers, elastomeric finish-coat materials, and related materials that are compatible with one another and with substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
B. Provide manufacturer's best-quality elastomeric coating materials that are factory formulated, comply
   with requirements in FS TT-C-555, and are recommended by manufacturer for the application indicated.
   Material containers not displaying manufacturer's product identification are not acceptable.

C. Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply
   that products named are required to be used to the exclusion of equivalent products of other
   manufacturers. Furnish manufacturer's material data and certificates of performance of proposed
   substitutions.

D. Colors and Textures: As selected by Architect from manufacturer’s full range including custom colors.

2.3 Sealant
   A. NeoGard 70991.

2.4 Patching Compound
   A. NeoGard 7032 NeoFlex patching compound.

2.5 Primers
   A. Acrylic primer as recommended by manufacturer for substrate and application.

2.6 Elastomeric Finish-Coat Materials
   A. Smooth Elastomeric Finish: NeoGard 7100 Series Elastomeric Acrylic Coating.

PART 3 - Execution

3.1 Examination
   A. Examine substrates and conditions, with Manufacturer Applicator present, for compliance with
      requirements for coating application. Comply with procedures specified in PDCA P4.

      1. Proceed with coating application only after unsatisfactory conditions have been corrected and
         surfaces are thoroughly dry.
      2. Start of coating application will be construed as Contractor’s acceptance of surface conditions.

   B. Review other Sections in which primers are provided to ensure compatibility of total system for various
      substrates. On request, furnish information on characteristics of finish materials to ensure use of
      compatible primers. Notify Architect in writing about anticipated problems when using coatings
      specified over substrates primed by others.

3.2 Preparation
   A. Remove hardware and hardware accessories, plates, machined surfaces, light fixtures, and similar items
      already installed that are not to be coated. If removal is impractical or impossible because of size or
      weight of item, provide surface-applied protection before surface preparation and coating. After
      completing coating operations, reinstall items removed, using workers skilled in trades involved.

   B. Before applying coatings or other surface treatments, clean substrates of substances that could impair
      bond of coating systems. Remove oil and grease before cleaning. Schedule cleaning and coating
      application so dust and other contaminants from cleaning process will not fall on wet, newly coated
      surfaces.
C. Clean and prepare surfaces to be coated according to manufacturer's written instructions for particular substrate conditions and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.
2. Prepare plaster concrete unit masonry and similar surfaces to receive elastomeric coatings. Remove dust, dirt, release agents, grease, oils, and similar impediments to good adhesion by water blasting followed by a clear water rinse.
   a. Remove mildew and neutralize surfaces according to manufacturer's written instructions before patching materials are applied.
   b. Determine alkalinity and moisture content of surfaces to be coated by performing appropriate tests. If surfaces are sufficiently alkaline to cause finish paint to blister and burn, correct this condition before application. Do not apply coatings over surfaces where moisture content exceeds that permitted in manufacturer's written instructions.

3. Fill cracks according to manufacturer's written instructions before coating surfaces. Remove dust and dirt from around cracks. Remove mildew by sterilizing before filling. Apply manufacturer's recommended primer to cracks before patching. If shrinkage occurs after applying crack filler, apply additional filler material to cracks before initial application of elastomeric coatings.
   a. Cracks up to 1/16 inch: Clean surface around cracks. Apply crack filler primer penetrating cracks as deeply as possible, overflowing crack 2 inches on each side. When crack filler primer is dry, apply manufacturer's recommended sealant, forced well into cracks using a brush, putty knife, or trowel. Smooth edges of primed area around cracks. Allow for sealant shrinkage when applying.
   b. Cracks up to 3/8 inch: Open cracks to ¼ to 3/8 inch wide and 1/8 inch deep. Clean cracks and surrounding area removing dust, dirt, and other impurities. Apply crack filler primer recommended by manufacturer with a brush to obtain uniform coverage and spread approximately 2 inches on each side of cracks. Fill cracks with manufacturer's recommended crack filler applied with a putty knife or trowel, and allow for shrinkage. If excessive shrinkage occurs, reapply crack filler.

D. Mask all control joints.

E. Mix and prepare materials according to coating manufacturer's written instructions.

1. Maintain containers used in mixing and applying elastomeric coatings in a clean condition, free of foreign materials and residue.
2. Stir materials before application to produce a mixture of uniform density. Stir as required during application. If surface film forms, do not stir film into material. If necessary, remove film and strain coating material before using.
3. Do not thin material unless specifically required by manufacturer's written instructions.

F. Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match color of finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 Application

A. Apply elastomeric coatings according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Do not paint over conditions detrimental to formation of a durable coating film, such as dirt, rust, scale, grease, moisture, and scuffed surfaces.
2. Provide finish coats compatible with primers used.

B. Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

C. Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Number of coats and film thickness required are same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.
2. If undercoats or other conditions show through final coat, apply additional coats until coating film is of uniform finish, color, and appearance. Ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
3. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until coating has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat does not cause undercoat to lift or lose adhesion.

D. Apply elastomeric coatings by spray according to manufacturer's written instructions. Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.

E. Apply each material no thinner than manufacturer's recommended spreading rate to achieve dry film thickness as recommended by manufacturer. For spray application, apply each coat to provide equivalent hiding of brush-applied coats. Do not double back with spray equipment, building up film thickness of two coats in one pass.

F. Apply block fillers to concrete unit masonry at a rate to ensure complete coverage with pores filled.

G. Apply a primer to material being coated before applying finish coats.

H. Match approved samples for color, texture, and coverage. Remove, refinish, or recoat work not complying with specified requirements.

3.4 Field Quality Control

A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during coating operations:

1. Owner will engage a qualified independent testing agency to sample coating material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform appropriate tests for the following characteristics as required by Owner:
   a. Elongation.
   b. Accelerated weathering.
   c. Low-temperature flexibility.
   d. Moisture-vapor transmission.
   e. Wind-driven rain resistance.
   f. Minimum solids content by volume.
3. Owner may direct Contractor to stop coating application if test results show materials being used do not comply with requirements. Contractor shall remove noncomplying materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. If necessary, Contractor
may be required to remove rejected materials from previously coated surfaces if, on recoating with specified materials, the two coatings are not compatible.

3.5 Cleaning

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site. After completing coating work, clean glass and spattered surfaces. Remove spattered coatings by washing, scraping, or other methods, being careful not to scratch or damage adjacent finished surfaces.

3.6 Protection

A. Protect work of other trades from damage whether being coated or not. Correct damage by cleaning, repairing, replacing, and recoating. Leave in an undamaged condition.

B. Provide "Wet Paint" signs to protect newly coated finishes. Remove temporary protective wrappings provided by others to protect their work after completing coating operations. After construction activities of other trades are complete, touch up and restore damaged or defaced coated surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION 09963