Cottonwood Union School District

20512 1st Street. Cottonwood, CA 96022

North Cottonwood Elementary School
Frontage Fencing and Main Entrance Modifications

19920 Gas Point Road, Cottonwood, CA 96022

Project Specifications

MODUS Project No. 25049.01
DSA Project # 02-123884
DECEMBER 22, 2025
V2 - APRIL 03, 2026

MODUS

PROJECT PROFESSIONAL STAMPS

ARCHITECT

Sean T. Huang C-27059

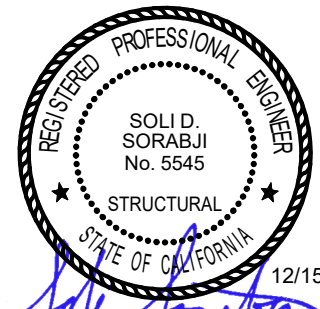
MODUS

58 2nd ST FL 4
San Francisco, CA 94105
(415) 798-0138



STRUCTURAL ENGINEER

Soli Sorabji *SE 5545*
Buehler Engineering
600 Q Street, Suite 200
Sacramento, CA 95811
(916) 443-0303



12/15/2025

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SECTION 00 01 03 – PROJECT DIRECTORY

PART 1 - **GENERAL**

PROJECT :

Project Name – North Cottonwood Elementary School - Frontage Fencing and Main Entrance Modifications

OWNER:

Cottonwood Union School District
20512 1st Street. Cottonwood, CA 96022
Superintendent: Doug Geren
doug.geren@cwusd.net

Facilities Director: Sam Diggle
samuel.diggle@cwusd.net

ARCHITECT	
Sean T. Huang	sean@modus-ds.com
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Buehler Engineering 600 Q Street, Suite 200 Sacramento, CA 95811	(916) 443-0303

END OF PROJECT DIRECTORY 00 01 03

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END OF SECTION 00 01 10

SECTION 00 45 19 – NON-COLLUSION AFFIDAVIT

PART 1 - **GENERAL**

1.1 DESCRIPTION

A. General: This Non-Collusion Affidavit shall be executed by the Bidder and submitted with the Bid Form.

1.2 NONCOLLUSION AFFIDAVIT FORM

(STATE OF CALIFORNIA)

(County of _____Shasta_____)

_____, 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.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

_____
Signature of Bidder

Subscribed and sworn to me on _____, 20_____.

PART 2 – **PRODUCTS**

Not used

Part 3 – **EXECUTION**

Not Used

END OF SECTION 00 45 19

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SECTION 00 62 16 – CERTIFICATE OF INSURANCE FORM

PART 1 – **GENERAL**

1.1 General: Provide insurance certificates to the Architect for delivery to the Owner certifying that all required insurance coverage is in effect and in force prior to beginning work on this Project. The insurance company must be listed in the official publication by the Department of Insurance, State of California, as being recognized as an insurance company authorized to transact business of insurance in the State of California for the current year.

1.2 Certificates

A. General: Refer to General Conditions for the required coverage.

B. Form: Use the "Accord" Insurance Certificate Form; insurance agent should have blank copies of such forms.

C. Endorsements: Provide endorsements naming the Owner, Architect**,** and their agents, or representatives and employees as additional insured on all liability policies of insurance required under this Agreement.

PART 2 – **PRODUCTS**
Not Used

PART 3 – **EXECUTION**
Not Used

END OF SECTION 00 62 16

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SECTION 00 62 39 – DVBE REQUIREMENTS

PART 1 **– GENERAL**

1.1 GENERAL CONTRACTOR RESPONSIBILITIES

A. General Contractor will perform all advertising, solicitations, local agency and Owner contacts and will furnish documentation of these activities to the Owner.

B. Statement of DVBE Participation Requirement

1. General Contractor shall make efforts to achieve a goal of three percent (3%) participation for Disabled Veteran Business Enterprises (DVBE) in state contracts. Submit documentation at the time of bid.
2. Read this document carefully as failure to comply with the DVBE requirement may cause your bid to be deemed nonresponsive and your firm ineligible for award of this incentive.

1.2 DEFINITIONS

A. The following definitions have general applicability throughout this document.
1. Trustees as used herein, means the Board of Trustees of the California State University and includes any division or campus thereof which has been delegated the authority to enter into contracts on behalf of the Trustees, and any person acting under authority of such delegation.
2. Bidder as used herein, means any person or entity making an offer or proposal competitively or non-competitively, for the purpose of securing the awarding or letting of a contract by the Trustees.
3. Disabled Veteran as used herein means a veteran of the military, naval or air services of the United States with at least a 10 percent service-connected disability who is a resident of the State of California.
4. Disabled Veteran Business Enterprise (DVBE) as used herein, means a business concern certified by the Office of Small Business and DVBE Services as meeting all of the following:
   a. The business is at least, 51 percent owned by one or more disabled veterans or in the case of a publicly owned business, at least 51 percent of its stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans.
   b. One or more disabled veterans manage and control the daily business operations. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business concern.
   c. A sole proprietorship, corporation, or partnership with its home office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm or other foreign-based business.
5. Commercially Useful Function as used herein, means any small business, microbusiness and DVBE must perform a "commercially useful function" in any contract they perform for the state. See: *http://www.documents.dgs.ca.gov/osp/sam/mmemos/MM05_03.pdf*

1.3 DVBE PARTICIPATION REQUIREMENT SATISFACTION

A. DVBE Participation Attainment
   1. In order to satisfy and be responsive to this requirement, the bidder must meet the DVBE Participation Requirement as follows:
      a. The three (3) percent Disabled Veteran Business Enterprise (DVBE) Participation Requirement is attained when:
         1. The bidder is not a Disabled Veteran Business Enterprise and is committed to use DVBEs for not less than three (3) percent of the contract dollar amount; or
         2. The bidder is a DVBE and committed to performing not less than three (3) percent of the contract dollar amount with its own forces or in combination with those of other DVBEs.

B. Approved Utilization Plan
   1. General
      a. To satisfy DVBE participation requirement, it is acceptable for State law for bidders bidding on contracts for materials, supplies and/or equipment, including electronic data processing ("EDP") goods and services to submit a DVBE Utilization Plan that has been approved, prior to the final bid due date, by the State Department of General Services Procurement Division.
         1. An approved utilization plan may not be used to satisfy the DVBE participation requirement for any public works contract.
         2. Utilization Plan Criteria and Approval
   2. Criteria
      a. At a minimum, the Utilization Plan must include all of the following information:
         1. A statement of the vendor's disabled veteran business enterprise utilization plan, including the primary objectives of the utilization plan.
         2. An explanation showing sufficient business reasons why the vendor did not meet disabled veteran business enterprise participation requirements set forth in the vendor's disabled veteran business utilization plan submitted to, and approved by, the Department of General Services in the previous year, if applicable. Further, if vendor did not meet the disabled veteran business participation requirements in the previous year, the vendor shall also identify remedial steps it will take to meet the requirements in the current utilization plan.
         3. A statement of the vendor's disabled veteran business utilization goals for the succeeding year.
            a. At a minimum these utilization goals shall be equal to the statewide participation goals set forth in subdivision (c) of Section 10115 of the Public Contract Code.
         4. Estimated total dollars to be subcontracted by the vendor for sales within the United States for the succeeding year.
         5. Estimated total dollars to be subcontracted by the vendor for sales within the State of California for the succeeding year.
         6. Total dollars, as expressed as a percentage of the amount estimated pursuant to paragraph (5) intended to be subcontracted with disabled veteran-owned business

enterprises.

7. A representative listing of the products and services that the vendor anticipates subcontracting, including an identification of the types of subcontracting planned for disabled veteran business enterprises.
8. The name of the individual employed by the vendor who will administer the vendor's utilization plan, including a description of the duties of the individual.
9. A description of the efforts that the vendor will undertake to ensure that disabled veteran business enterprises will have an equitable opportunity to compete for contracts.
10. A listing of the records and reports that the vendor will maintain to demonstrate the practices and procedures that have been adopted to comply with the requirements and goals of the utilization plan.
11. Affirmation that the vendor met the statewide disabled veteran business enterprise utilization requirement for the previous year, if applicable.

3. Approval
    1. A business utilization plan shall be considered approved by the Department of General Services as of the date submitted to the Department of General Services so long as the plan meets the minimum criteria set forth in paragraphs (a) to (k), inclusive, in Subsection (2,a,1) above.

1.4 DVBE PARTICIPATION REQUIREMENT DOCUMENTATION

A. General
    1. The bidder must document its effort to meet the DVBE participation requirement.
    2. The DVBE cannot self-certify.

B. Required Documentation
    1. The DVBE documentation forms that must be completed are as follows and instructions for completing the required forms correctly are included to assist the bidder.
        a. DVBE Transmittal Form (Attachment A)
            1. Bidders must fill out and attach the DVBE transmittal form as a cover sheet to the required documents and submit it and the additional required documentation within the time frame specified in the bid solicitation, or if not specified therein, within a time frame otherwise designated by the Trustees. All requested DVBE documentation must be completed on the forms provided and submitted with the DBVE Transmittal Form.
        b. Summary of Disabled Veteran Owned Business Participation (Attachment B)
            1. Attachment 1, Summary of Disabled Veteran Owned Business Participation, must be completed showing the type of work and company proposed for DVBE participation, their subcontractors (if any) and other related information. Complete the form providing the information as follows:
                a. Company Name - list the name of the company proposed for DVBE participation. If the prime General Contractor is a DVBE, its name must also be listed to receive participation credit.
                b. Nature of Work - identify the proposed work or service to be provided by the listed company. Work shall have a commercially useful function.
                c. Contracting With - list the name of the department or company with which the

company listed is contracting.

d. TIER - the contracting tier should be indicated with the following level designations:
   0 = Prime General Contractor;
   1 = First tier primary subcontractor/supplier;
   2 = Second tier subcontractor/supplier of first tier subcontractor/supplier;
   3 = Third tier subcontractor/supplier of second tier subcontractor/supplier, etc.
e. Claimed DVBE Value - the total dollar amount of the value claimed by a disabled veteran business enterprise.
f. Percentage of Contract - compute the percentage (%) the claimed DVBE value is of the total contract dollar amount.
g. DVBE Certification - The bidder must include the certification number from the Office of Small Business Services and DVBE Services Certification Programs for each DVBE firm listed on the Summary of Disabled Veteran Owned Business Participation.

c. Bidder's Certification (Attachment C)
   1. The bidder must sign and include the Bidder's Certification, certifying that each firm listed on the Summary of Disabled Veteran Owned Business Participation (Attachment 1) complies with the legal definition of DVBE.

C. Time Frame for Submitting Documentation
   1. The DVBE participation documentation must be submitted within the timeframe specified in the bid solicitation, or if not specified therein, within a timeframe otherwise designated by the Trustees. Failure to submit full and accurate documentation within the specified or designated timeframe will result in your firm being deemed non-responsive, and thus ineligible for award of the contract.

D. Disabled Veteran Business Enterprise Declarations (Attachment D)
   1. The disabled veteran (DV) owner(s) and DV manager(s) of the Disabled Veteran Business Enterprise (DVBE) must complete this declaration when a DVBE General Contractor or subcontractor will provide materials, supplies, services or equipment [Military and Veterans Code Section 999.2]. Violations are misdemeanors and punishable by imprisonment or fine and violators are liable for civil penalties. All signatures are made under penalty of perjury.

1.5 USE OF PROPOSED DVBE

A. If awarded the contract, the successful bidder must use the DVBE subcontractors and/or suppliers proposed in its bid proposal unless it has requested substitution and has received approval of the Owner in compliance with the Subletting and Subcontracting Fair Practices Act.
   1. Failure to adhere to at least the DVBE participation proposed by the successful bidder may be cause for contract termination and recovery of damages under the rights and remedies due the Trustees under the default section of the contract.

B. Substitutions
   1. If awarded the Contract(s), the successful bidder must use any DVBE subcontractor and-or supplier proposed in its bid unless the successful bidder requests permission from District to

substitute another firm in place of the listed DVBE. If the listing is governed by Public Contract Code Section 4100, et. Seq., any requested substitution must comply with those sections. If the listing is not governed by Public Contract Code Section 4100, et. Seq., a request for substitution must include:

a. A written explanation of the reason for the substitution;
b. The identity of the person or firm substituted; and
c. Satisfactory evidence that the DVBE contract participation certified in the original bid/proposal will still be met after the substitution, or an acceptable explanation of why an exception should be made.

2. Owner's approval or disapproval of the substitution is not to be construed as an excuse for non-compliance with any other provision of law including, but not limited to, the Subletting and Subcontracting Fair Practices Act or any other contract requirements relating to substitution of subcontractors.

1.6 CONTRACT AUDITS

A. General Contractor agrees that the Owner representative will have the right to obtain, review and copy all records pertaining to performance of the contract, including but not limited to reports of payments made to subcontractors during the term of a contract.
   1. General Contractor agrees to provide the Owner representative with any relevant information requested and shall permit the Owner representative access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with this requirement.
   2. General Contractor will further agree to maintain such records for a period of three (3) years after final payment under the contract.

1.7 CALIFORNIA DEPARTMENT OF GENERAL SERVICES

A. Office of Small Business and DVBE Services (OSDS)
   1. Certifies small businesses and DVBE's, provides business information to further participation in state contracting opportunities, and publishes a listing of certified DVBE's.

Physical Location
707 Third Street, 2st Floor, Room 400
West Sacramento CA 95605
Mailing Address
P.O. Box 989052
West Sacramento, CA 95798-9052

Receptionist: (916) 375-4940
Procurement Division Central Receptionist: (800) 559-5529
FAX #: (916) 375-4950
Email: osdshelp@dgs.ca.gov

Certified DVBE listing Internet address: http://www.pd.dgs.ca.gov/pd/programs/osds.aspx

PART 2 - **PRODUCTS**

A. Provide required documentation.

PART 3 - **EXECUTION**

A. General:
   1. Comply with DVBE guidelines and herein specified.

B. Activity Report – Disabled Veterans Business Enterprise Subcontractor Activity Report (Attachment E)
   1. General Contractor to submit this form twice 1) prior to release of retention by Owner and 2) after all payments have been made, per Owner contract.

END OF SECTION 00 62 39

ATTACHMENT A
DVBE TRANSMITTAL FORM

This DVBE Transmittal Form is to be attached and used as cover sheet for the required DVBE documentation which must be submitted at the time of the bid opening.

Project Name: _____

Project Number: _____

Bid Date: _____

Name of **General Contractor** Submitting Bid: _____

Please check off the following to insure you have included them in your documentation:

_____ Attachment 1: Summary of DVBE Participation

_____ Attachment 2: Bidder's Certification of DVBE Status of Subcontractors and Suppliers

_____ Disabled Veteran Business Enterprise Declarations, Form STD. 843

_____ Disabled Veteran Business Enterprise Subcontractor Activity Report (Submit this form twice 1) prior to release of retention by Owner, and 2) after all payments have been made.

OFFICIAL O USE ONLY

Did Contractor meet 3% DVBE requirement? ▪ Yes ▪ No

DVBE Bid Incentive (attach abstract of bids)
Amount of DVBE Bid Incentive granted: _____%
Amount of DVBE Participation pledged: _____%

Signed: _____
DVBE Program Advocate Date

ATTACHMENT B
SUMMARY OF DISABLED VETERAN-OWNED BUSINESS PARTICIPATION

Company Name	Nature of Work	Contracting With	Tier	Claimed DVBE Value $	Percentage of Contract (%)	OSMB DVBE Certification

I declare under penalty of perjury, under the laws of the State of California, that the information herein is true and correct to the best of my knowledge.

Executed on: _____ at _____ in the state
Date City

of _____.
State

Signature of Contractor or Authorized Agent | Project Name | Project Number

Printed Name | Firm Name | ( ) Telephone

ATTACHMENT C
BIDDER'S CERTIFICATION

DISABLED VETERAN BUSINESS ENTERPRISE

STATUS OF SUBCONTRACTORS AND SUPPLIERS

I hereby certify that I have made a diligent effort to ascertain the facts with regard to the representations made herein and, to the best of my knowledge and belief, each firm set forth in this bid as a disabled veteran business enterprise complies with the relevant definition set forth in law. In making this certification, I am aware of Section 12650 *et seq*. of the Government Code providing for the imposition of treble damages for making false claims against the State, Section 10115.10 of the Public Contract Code making it a crime to intentionally make an untrue statement in this certificate, and the provisions of the Military and Veterans Code, Section 999.9.

_____ _____

Date Signature of Authorized Agent

_____

Title

ATTACHMENT D

STATE OF CALIFORNIA – DEPARTMENT OF GENERAL SERVICES PROCUREMENT DIVISION

DISABLED VETERAN BUSINESS ENTERPRISE DECLARATIONS

STD. 843 (Rev. 5/2006)

Instructions: The disabled veteran (DV) owner(s) and DV manager(s) of the Disabled Veteran Business Enterprise (DVBE) must complete this declaration when a DVBE contractor or subcontractor will provide materials, supplies, services or equipment [Military and Veterans Code Section 999.2]. Violations are misdemeanors and punishable by imprisonment or fine and violators are liable for civil penalties. All signatures are made under penalty of perjury.

SECTION 1

Name of certified DVBE: _____ DVBE Ref. Number: _____

Description (materials/supplies/services/equipment proposed): _____

Solicitation/Contract Number: _____ SCPRS Ref. Number: _____ (FOR STATE USE ONLY)

SECTION 2

APPLIES TO ALL DVBEs. Check only one box in Section 2 and provide original signatures.

☐ I (we) declare that the DVBE is not a broker or agent, as defined in Military and Veterans Code Section 999.2 (b), of materials, supplies, services or equipment listed above. Also, complete Section 3 below if renting equipment.

☐ Pursuant to Military and Veterans Code Section 999.2 (f), I (we) declare that the DVBE is a broker or agent for the principal(s) listed below or on an attached sheet(s). *(Pursuant to Military and Veterans Code 999.2 (e), State funds expended for equipment rented from equipment brokers pursuant to contracts awarded under this section shall not be credited toward the 3-percent DVBE participation goal.)*

All DV owners and managers of the DVBE **(attach additional pages with sufficient signature blocks for each person to sign)**:

_____ (Printed Name of DV Owner/Manager) _____ (Signature of DV Owner/ Manager) _____ (Date Signed)

_____ (Printed Name of DV Owner/Manager) _____ (Signature of DV Owner/Manager) _____ (Date Signed)

Firm/Principal for whom the DVBE is acting as a broker or agent: _____ (Print or Type Name)
(If more than one firm, list on extra sheets.)

Firm/Principal Phone: _____ Address: _____

SECTION 3

APPLIES TO ALL DVBEs THAT RENT EQUIPMENT AND DECLARE THE DVBE IS NOT A BROKER.

☐ Pursuant to Military and Veterans Code Section 999.2 (c), (d) and (g), I am (we are) the DV(s) with at least 51% ownership of the DVBE, or a DV manager(s) of the DVBE. The DVBE maintains certification requirements in accordance with Military and Veterans Code Section 999 et. seq.

☐ The undersigned owner(s) own(s) at least 51% of the quantity and value of each piece of equipment that will be rented for use in the contract identified above. I (we), the DV owners of the equipment, have submitted to the administering agency my (our) personal federal tax return(s) at time of certification and annually thereafter as defined in *Military and Veterans Code 999.2*, subsections (c) and (g). *Failure by the disabled veteran equipment owner(s) to submit their personal federal tax return(s) to the administering agency as defined in Military and Veterans Code 999.2, subsections (c) and (g), will result in the DVBE being deemed an equipment broker.*

Disabled Veteran Owner(s) of the DVBE **(attach additional pages with signature blocks for each person to sign)**:

_____ (Printed Name) _____ (Signature) _____ (Date Signed)

_____ (Address of Owner) _____ (Telephone) _____ (Tax Identification Number of Owner)

Disabled Veteran Manager(s) of the DVBE **(attach additional pages with sufficient signature blocks for each person to sign)**:

_____ (Printed Name of DV Manager) _____ (Signature of DV Manager) _____ (Date Signed)

Page ___ of ___

PRINT CLEAR

ATTACHMENT E

Disabled Veteran Business Enterprise Subcontractor Activity Report

(General Contractor to submit this form twice 1) prior to release of retention by CSU, and 2) after all payments have been made, per CGCs article 2.13. Add more lines to the form as required.)

Campus:	
Project Name:	
Project Number:	
General Contractor:	
Total Amt Paid to General Contractor:	$
Total Amt held in Retention by CSU:	$
Total GC Contract Amount:	$

Report #1 ☐ *[check if retention not yet released]*
Report #2 ☐ *[check if final pmts have been made]*

	DVBE Name/Address:	$ Amount each DVBE Received from GC	$ Amount Owed to DVBE Sub	Final $ Amount to be Pd DVBE Sub	Final Amt to be Pd DVBE Sub as % of GC Contract Amount
1	DVBE1 address city, st zip	$	$	$	%
2	DVBE2 address city, st zip	$	$	$	%
3	DVBE3 address city, st zip	$	$	$	%
4	DVBE4 address city, st zip	$	$	$	%
5	DVBE5 address city, st zip	$	$	$	%
	TOTAL DVBE PARTICIPATION	$	$	$	%

Certification

The submitter of the foregoing statements has read the same, and that they are true to the best of the his/her knowledge. The statements are for the purpose of verifying the DVBE participation for this Contract. By signing below, the submitter certifies and declares under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Note: a person or entity that knowingly provides false informaton shall be subject to a civil penalty for each violation in the minimum amount of two thousand five hundred dollars ($2,500) and the maximum amount of twenty-five thousand dollars ($25,000).

Signature | Print Name, Title, Phone No. | Date

DVBE-AR 7/10

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DOCUMENT 00 72 13 GENERAL CONDITIONBS

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GENERAL CONDITIONS

1. CONTRACT TERMS AND DEFINITIONS

1.1 Definitions

Wherever used in the Contract Documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof:

1.1.1 Adverse Weather: Shall be only weather that satisfies all of the following conditions: (1) unusually severe precipitation, sleet, snow, hail, or extreme temperature conditions in excess of the norm for the location and time of year it occurred based on the closest weather station data averaged over the past five years, (2) that is unanticipated and would cause unsafe work conditions and/or is unsuitable for scheduled work that should not be performed during inclement weather (i.e., exterior finishes), and (3) at the Project.

1.1.2 Allowance Expenditure Directive: Written authorization for expenditure of allowance, if any.

1.1.3 Approval, Approved, and/or Accepted: Written authorization, unless stated otherwise.

1.1.4 Architect (or "Design Professional in General Responsible Charge"): The individual, partnership, corporation, joint venture, or any combination thereof, named as Architect, who will have the rights and authority assigned to the Architect in the Contract Documents. The term Architect means the Design Professional in General Responsible Charge as defined in DSA PR 13-02 on this Project or the Architect's authorized representative.

1.1.5 As-Builts: Reproducible blue line prints of drawings to be prepared on a monthly basis pursuant to the Contract Documents, that reflect changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed since the preceding monthly submittal. See **Record Drawings**.

1.1.6 Bidder: A contractor who intends to provide a proposal to the District to perform the Work of this Contract.

1.1.7 Change Order: A written order to the Contractor authorizing an addition to, deletion from, or revision in the Work, and/or authorizing an adjustment in the Contract Price or Contract Time.

1.1.8 Claim: A Dispute that remains unresolved at the conclusion of the all the applicable Dispute Resolution requirements provided herein.

1.1.9 Construction Change Directive: A written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work.

1.1.10 Construction Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Construction Manager is used on the Project that is the subject of this Contract, then all references to Construction Manager herein shall be read to refer to District.

1.1.11 Construction Schedule: The progress schedule of construction of the Project as provided by Contractor and approved by District.

1.1.12 Contract, Contract Documents: The Contract consists exclusively of the documents evidencing the agreement of the District and Contractor, identified as the Contract Documents. The Contract Documents consist of the following documents:

1.1.12.1 Notice to Bidders
1.1.12.2 Instructions to Bidders
1.1.12.3 Bid Form and Proposal
1.1.12.4 Bid Bond
1.1.12.5 Designated Subcontractors List
1.1.12.6 Site Visit Certification (if a site visit was required)
1.1.12.7 Non-Collusion Declaration
1.1.12.8 Notice of Award
1.1.12.9 Notice to Proceed
1.1.12.10 Agreement
1.1.12.11 Escrow of Bid Documentation
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1.1.12.13 Performance Bond
1.1.12.14 Payment Bond (Contractor's Labor & Material Bond)
1.1.12.15 General Conditions
1.1.12.16 Special Conditions (if applicable)
1.1.12.17 Project Labor Agreement (if applicable)

1.1.12.18 Hazardous Materials Procedures and Requirements
1.1.12.19 Workers' Compensation Certification
1.1.12.20 Prevailing Wage Certification
1.1.12.21 Disabled Veteran Business Enterprise Participation Certification (if applicable)
1.1.12.22 Drug-Free Workplace Certification (if applicable)
1.1.12.23 Tobacco-Free Environment Certification
1.1.12.24 Hazardous Materials Certification (if applicable)
1.1.12.25 Lead-Based Materials Certification (if applicable)
1.1.12.26 Imported Materials Certification (if applicable)
1.1.12.27 Criminal Background Investigation/Fingerprinting Certification
1.1.12.28 Buy American Certification (if applicable)
1.1.12.29 Roofing Project Certification (if applicable)
1.1.12.30 Registered Subcontractors List
1.1.12.31 Iran Contracting Act Certification (if applicable)
1.1.12.32 Post Bid Interview
1.1.12.33 All Plans, Technical Specifications, and Drawings
1.1.12.34 Any and all addenda to any of the above documents
1.1.12.35 Any and all change orders or written modifications to the above documents if approved in writing by the District

1.1.13 Contract Price: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.1.14 Contract Time: The time period stated in the Agreement for the completion of the Work.

1.1.15 Contractor: The person or persons identified in the Agreement as contracting to perform the Work to be done under this Contract, or the legal representative of such a person or persons.

1.1.16 Daily Job Report(s): Daily Project reports prepared by the Contractor's employee(s) who are present on Site, which shall include the information required herein.

1.1.17 Day(s): Unless otherwise designated, day(s) means calendar day(s).

1.1.18 Department of Industrial Relations (or "DIR"): is responsible, among other things, for labor compliance monitoring and enforcement of California prevailing wage laws and regulations for public works contracts.

1.1.19 Design Professional in General Responsible Charge: See definition of **Architect** above.

1.1.20 Dispute: A separate demand by Contractor for a time extension, or payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or Contractor is not otherwise entitled to; or an amount of payment disputed by the District.

1.1.21 District: The public agency or the school district for which the Work is performed. The governing board of the District or its designees will act for the District in all matters pertaining to the Contract. The District may, at any time,

1.1.21.1 Direct the Contractor to communicate with or provide notice to the Construction Manager or the Architect on matters for which the Contract Documents indicate the Contractor will communicate with or provide notice to the District; and/or

1.1.21.2 Direct the Construction Manager or the Architect to communicate with or direct the Contractor on matters for which the Contract Documents indicate the District will communicate with or direct the Contractor.

1.1.22 Drawings (or "Plans"): The graphic and pictorial portions of the Contract Documents showing the design, location, scope and dimensions of the work, generally including plans, elevations, sections, details, schedules, sequence of operation, and diagrams.

1.1.23 DSA: Division of the State Architect.

1.1.24 Force Account Directive: A process that may be used when the District and the Contractor cannot agree on a price for a specific portion of work or before the Contractor prepares a price for a specific portion of work and whereby the Contractor performs the work as indicated herein on a time and materials basis.

1.1.25 Job Cost Reports: Any and all reports or records detailing the costs associated with work performed on or related to the Project that Contractor shall maintain for the Project. Specifically, Job Cost Reports shall contain, but are not limited by or to, the following information: a description of the work performed or to be performed on the Project; quantity, if applicable, of work performed (hours, square feet, cubic yards, pounds, etc.) for the Project; Project budget; costs for the Project to date; estimated costs to complete the Project; and expected costs at completion. The Job Cost Reports shall also reflect all Contract cost codes, change orders, elements of non-conforming work, back charges, and additional services.

1.1.26 Labor Commissioner's Office (or "Labor Commissioner", also known as the Division of Labor Standards Enforcement ("DLSE")): Division of the DIR responsible for adjudicating wage claims, investigating discrimination and public works complaints, and enforcing Labor Code statutes and Industrial Welfare Commission orders.

1.1.27 Municipal Separate Storm Sewer System (or "MS4"): A system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

1.1.28 Plans: See **Drawings**.

1.1.29 Premises: The real property owned by the District on which the Site is located.

1.1.30 Product(s): New material, machinery, components, equipment, fixtures and systems forming the Work, including existing materials or components required and approved by the District for reuse.

1.1.31 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

1.1.32 Program Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Program Manager is designated for Project that is the subject of this Contract, then all references to Project Manager herein shall be read to refer to District.

1.1.33 Project: The planned undertaking as provided for in the Contract Documents.

1.1.34 Project Inspector (or "Inspector"): The individual(s) retained by the District in accordance with title 24 of the California Code of Regulations to monitor and inspect the Project.

1.1.35 Project Labor Agreement (or "PLA"): a prehire collective bargaining agreement in accordance with Public Contract Code section 2500 et seq. that establishes terms and conditions of employment for a specific construction project or projects and/or is an agreement described in Section 158(f) of Title 29 of the United States Code.

1.1.36 Proposed Change Order (or "PCO"): a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

1.1.37 Provide: Shall include "provide complete in place," that is, "furnish and install," and "provide complete and functioning as intended in place" unless specifically stated otherwise.

1.1.38 Qualified SWPPP Practitioners (or "QSP"): certified personnel that attended a State Water Resources Control Board sponsored or approved training class and passed the qualifying exam.

1.1.39 Record Drawings: Reproducible drawings (or Plans) prepared pursuant to the requirements of the Contract Documents that reflect all changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed upon completion of the Project. See also **As-Builts**.

1.1.40 Request for Information (or "RFI"): A written request prepared by the Contractor requesting that the Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that the Contractor believes is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address problems that have arisen under field conditions.

1.1.41 Request for Substitution for Specified Item: A request by Contractor to substitute an equal or superior material, product, thing, or service for a specific material, product, thing, or service that has been designated in the Contract Documents by a specific brand or trade name.

1.1.42 Safety Orders: Written and/or verbal orders for construction issued by the California Division of Occupational Safety and Health ("CalOSHA") or by the United States Occupational Safety and Health Administration ("OSHA").

1.1.43 Safety Plan: Contractor's safety plan specifically adapted for the Project. Contractor's Safety Plan shall comply with all provisions regarding Project safety, including all applicable provisions in these General Conditions.

1.1.44 Samples: Physical examples that illustrate materials, products, equipment, finishes, colors, or workmanship and that, when approved in accordance with the Contract Documents, establish standards by which portions of the Work will be judged.

1.1.45 Shop Drawings: All drawings, prints, diagrams, illustrations, brochures, schedules, and other data that are prepared by the Contractor, a subcontractor, manufacturer, supplier, or distributor, that illustrate how specific portions of the Work shall be fabricated or installed.

1.1.46 Site: The Project site as shown on the Drawings.

1.1.47 Specifications: That portion of the Contract Documents, Division 1 through Division 49, and all technical sections, and addenda to all of these, if any, consisting of written descriptions and requirements of a technical nature of materials, equipment, construction methods and systems, standards, and workmanship.

1.1.48 State: The State of California.

1.1.49 Storm Water Pollution Prevention Plan (or "SWPPP"): A document which identifies sources and activities at a particular facility that may contribute pollutants to storm water and contains specific control measures and time frames to prevent or treat such pollutants.

1.1.50 Subcontractor: A contractor and/or supplier who is under contract with the Contractor or with any other subcontractor, regardless of tier, to perform a portion of the Work of the Project.

1.1.51 Submittal Schedule: The schedule of submittals as provided by Contractor and approved by District.

1.1.52 Surety: The person, firm, or corporation that executes as surety the Contractor's Performance Bond and Payment Bond, and must be a California admitted surety insurer as defined in the Code of Civil Procedure section 995.120.

1.1.53 Work: All labor, materials, equipment, components, appliances, supervision, coordination, and services required by, or reasonably inferred from, the Contract Documents, that are necessary for the construction and completion of the Project.

1.2 Laws Concerning the Contract

Contract is subject to all provisions of the Constitution and laws of California and the United States governing, controlling, or affecting District, or the property, funds, operations, or powers of District, and such provisions are by this reference made a part hereof. Any provision required by law to be included in this Contract shall be deemed to be inserted.

1.3 No Oral Agreements

No oral agreement or conversation with any officer, agent, or employee of District, either before or after execution of Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

1.4 No Assignment

Contractor shall not assign this Contract or any part thereof including, without limitation, any services or money to become due hereunder without the prior written consent of the District. Assignment without District's prior written consent shall be null and void. Any assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of work called for under this Contract in favor of all persons, firms, or corporations rendering services or supplying material to the extent that claims are filed pursuant to the Civil Code, Code of Civil Procedure, Government Code, Labor Code, and/or Public Contract Code, and shall also be subject to deductions for liquidated damages or withholding of payments as determined by District in accordance with this Contract. Contractor shall not assign or transfer in any manner to a Subcontractor or supplier the right to prosecute or maintain an action against the District.

1.5 Notice and Service Thereof

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

1.5.1.1 If notice is given by personal delivery thereof, it shall be considered delivered on the day of delivery.

1.5.1.2 If notice is given by overnight delivery service, it shall be considered delivered one (1) day after date deposited, as indicated by the delivery service.

1.5.1.3 If notice is given by depositing same in United States mail, enclosed in a sealed envelope, it shall be considered delivered three (3) days after date deposited, as indicated by the postmarked date.

1.5.1.4 If notice is given by registered or certified mail with postage prepaid, return receipt requested, it shall be considered delivered on the day the notice is signed for.

1.5.1.5 Electronic mail may be used for convenience but is not a substitute for the notice and service requirements herein.

1.6 No Waiver

The failure of District in any one or more instances to insist upon strict performance of any of the terms of this Contract 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. No action or failure to act by the District, Architect, or Construction Manager shall constitute a waiver of any right or duty afforded the District under the Contract, nor shall any action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

1.7 Substitutions for Specified Items

Unless the Special Conditions contain different provisions, Contractor shall not substitute different items for any items identified in the Contract Documents without prior written approval of the District.

1.8 Materials and Work

1.8.1 Except as otherwise specifically stated in this Contract, Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to execute and complete this Contract, in a good and workmanlike manner, within the Contract Time.

1.8.2 Unless otherwise specified, all materials shall be new and of the best quality of their respective kinds and grades as noted or specified, workmanship shall be of good quality, and Contractor shall use all diligence to inform itself fully as to the required manufacturer's instructions and to comply therewith.

1.8.3 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 from the elements, theft, vandalism, or other loss or damage as required.

1.8.4 For all materials and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems, functioning as intended. Incidental items not indicated on Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized here in every detail. In all instances, material and equipment shall be installed in strict accordance with each manufacturer's most recent published recommendations and specifications.

1.8.5 Contractor shall, after award of Contract by District and after relevant submittals have been approved, 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 District, present documentary evidence showing that orders have been placed.

1.8.6 District reserves the right but has no obligation, in response to Contractor's neglect or failure in complying with the above instructions, to place orders for such materials and/or equipment as the District 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 Contractor or deducted from payment(s) to Contractor.

1.8.7 Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver the Site to District, together with all improvements and appurtenances constructed or placed thereon by it, and 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 the Contract shall have any right to lien any portion of the Premises or any improvement or appurtenance thereon, except that Contractor may install metering devices or other equipment of utility companies or of political subdivision, 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.

1.8.7.1 If a lien or a claim based on a stop payment notice of any nature should at any time be filed against the Work or any District property, by any entity that has supplied material or services at the request of the Contractor, Contractor and Contractor's Surety shall promptly, on demand by District and at Contractor's and Surety's own expense, take any and all action necessary to cause any such lien or a claim based on a stop payment notice to be released or discharged immediately therefrom.

1.8.7.2 If the Contractor fails to furnish to the District within ten (10) calendar days after demand by the District, satisfactory evidence that a lien or a claim based on a stop payment notice has been so released, discharged, or secured, the District may discharge such indebtedness and deduct the amount required therefor, together with any and all losses, costs, damages, and attorney's fees and expense incurred or suffered by District from any sum payable to Contractor under the Contract.

1.8.8 Nothing contained in this Article, however, shall defeat or impair the rights of persons furnishing materials or labor under any bond given by Contractor for their protection or any rights under any law permitting such protection or any rights under any law permitting such persons to look to funds due Contractor in hands of District

(e.g., stop payment notices), and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

1.8.9 Title to new materials and/or equipment for the Work of this Contract and attendant liability for its protection and safety shall remain with Contractor until incorporated in the Work of this Contract and accepted by District. No part of any materials and/or equipment shall be removed from its place of storage except for immediate installation in the Work of this Contract. Should the District, in its discretion, allow the Contractor to store materials and/or equipment for the Work off-site, Contractor will store said materials and/or equipment at a bonded warehouse and with appropriate insurance coverage at no cost to District. Contractor shall keep an accurate inventory of all materials and/or equipment in a manner satisfactory to District or its authorized representative and shall, at the District's request, forward it to the District.

2. [RESERVED]

3. ARCHITECT

3.1 The Architect shall represent the District during the Project and will observe the progress and quality of the Work on behalf of the District. Architect shall have the authority to act on behalf of District to the extent expressly provided in the Contract Documents and to the extent determined by District. Architect shall have authority to reject materials, workmanship, and/or the Work whenever rejection may be necessary, in Architect's reasonable opinion, to insure the proper execution of the Contract.

3.2 Architect shall, with the District and on behalf of the District, determine the amount, quality, acceptability, and fitness of all parts of the Work, and interpret the Specifications, Drawings, and shall, with the District, interpret all other Contract Documents.

3.3 Architect shall have all authority and responsibility established by law, including title 24 of the California Code of Regulations.

3.4 Contractor shall provide District and the Construction Manager with a copy of all written communication between Contractor and Architect at the same time as that communication is made to Architect, including, without limitation, all RFIs, correspondence, submittals, claims, and proposed change orders.

4. CONSTRUCTION MANAGER

4.1 If a Construction Manager is used on this Project ("Construction Manager" or "CM"), the Construction Manager will provide administration of the Contract on the District's behalf. After execution of the Contract and Notice to Proceed, all correspondence and/or

instructions from Contractor and/or District shall be forwarded through the Construction Manager. The Construction Manager will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures or for safety precautions in connection with the Work, which shall all remain the Contractor's responsibility.

4.2 The Construction Manager, however, will have authority to reject materials and/or workmanship not conforming to the Contract Documents, as determined by the District, the Architect, and/or the Project Inspector. The Construction Manager shall also have the authority to require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Any decision made by the Construction Manager, in good faith, shall not give rise to any duty or responsibility of the Construction Manager to: the Contractor; any Subcontractor; the Contractor or Subcontractor's respective agents, employees; or other persons performing any of the Work. The Construction Manager shall have free access to any or all parts of Work at any time.

4.3 If the District does not use a Construction Manager on this Project, all references to Construction Manager or CM shall be read as District.

5. INSPECTOR, INSPECTIONS, AND TESTS

5.1 Project Inspector

5.1.1 One or more Project Inspector(s), including special Project Inspector(s), as required, will be assigned to the Work by District, in accordance with requirements of title 24, part 1, of the California Code of Regulations, to enforce the building code and monitor compliance with Plans and Specifications for the Project previously approved by the DSA. Duties of Project Inspector(s) are specifically defined in section 4-342 of said part 1 of title 24.

5.1.2 No Work shall be carried on except with the knowledge and under the inspection of the Project Inspector(s). The Project Inspector(s) shall have free access to any or all parts of Work at any time. Contractor shall furnish Project Inspector(s) reasonable opportunities for obtaining such information as may be necessary to keep Project Inspector(s) fully informed respecting progress and manner of work and character of materials, including, but not limited to, submission of form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector at least 48 hours in advance of the commencement and completion of construction of each and every aspect of the Work. Forms are available on the DSA's website at: http://www.dgs.ca.gov/dsa/Forms.aspx. Inspection of Work shall not relieve Contractor from an obligation to fulfill this Contract. Project Inspector(s) and the DSA are authorized to suspend work whenever the Contractor and/or its Subcontractor(s) are

not complying with the Contract Documents. Any work stoppage by the Project Inspector(s) and/or DSA shall be without liability to the District. Contractor shall instruct its Subcontractors and employees accordingly.

5.1.3 If Contractor and/or any Subcontractor requests that the Project Inspector(s) perform any inspection off-site, this shall only be done if it is allowable pursuant to applicable regulations and DSA approval, if the Project Inspector(s) agree to do so, and at the expense of the Contractor.

5.2 Tests and Inspections

5.2.1 Tests and Inspections shall comply with title 24, part 1, California Code of Regulations, group 1, article 5, section 4-335, and with the provisions of the Specifications.

5.2.2 The District will select an independent testing laboratory to conduct the tests. Selection of the materials required to be tested shall be by the laboratory or the District's representative and not by the Contractor. The Contractor shall notify the District's representative a sufficient time in advance of its readiness for required observation or inspection.

5.2.3 The Contractor shall notify the District's representative a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents, which must by terms of the Contract Documents be tested, in order that the District may arrange for the testing of same at the source of supply. This notice shall be provided, at a minimum, seventy-two (72) hours prior to the manufacture of the material that needs to be tested.

5.2.4 Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated into and/or onto the Project.

5.2.5 The District will select the testing laboratory and pay for the cost of all tests and inspections. Contractor shall reimburse the District for any and all laboratory costs or other testing costs for any materials found to be not in compliance with the Contract Documents. At the District’s discretion, District may elect to deduct laboratory or other testing costs for noncompliant materials from the Contract Price, and such deduction shall not constitute a withholding.

5.3 Costs for After Hours and/or Off Site Inspections

If the Contractor performs Work outside the Inspector's regular working hours or requests the Inspector to perform inspections off Site, costs of any inspections required outside regular working hours or off Site shall be borne by the Contractor and may be invoiced to the Contractor by the District or the District may deduct those expenses from the next Progress Payment.

6. CONTRACTOR

Contractor shall construct and complete, in a good and workmanlike manner, the Work for the Contract Price including any adjustment(s) to the Contract Price pursuant to provisions herein regarding changes to the Contract Price. Except as otherwise noted, Contractor shall provide and pay for all labor, materials, equipment, permits (excluding DSA), fees, licenses, facilities, transportation, taxes, bonds and insurance, and services necessary for the proper execution and completion of the Work, except as indicated herein.

6.1 Status of Contractor

6.1.1 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 and its Subcontractors perform the services required of it by the Contract Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the District, or any of the District's employees or agents, and Contractor or any of Contractor's Subcontractors, agents or employees. Contractor assumes exclusively the responsibility for the acts of its agents, and employees as they relate to the services to be provided during the course and scope of their employment. Contractor, its Subcontractors, agents, and its employees shall not be entitled to any rights or privileges of District employees. District shall be permitted to monitor the Contractor's activities to determine compliance with the terms of this Contract.

6.1.2 As required by law, Contractor and all Subcontractors shall be properly licensed and regulated by the Contractors State License Board, 9821 Business Park Drive, Sacramento, California 95827, http://www.cslb.ca.gov.

6.1.3 As required by law, Contractor and all Subcontractors shall be properly registered as public works contractors by the Department of Industrial Relations at: https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRegistrationForm or current URL.

6.1.4 Contractor represents that it has no existing interest and will not acquire any interest, direct or indirect, which could conflict in any manner or degree with the performance of Work required under this Contract and that no person having any such interest shall be employed by Contractor.

6.2 Project Inspection Card(s)

Contractor shall verify that forms DSA 152 (or the current version applicable at the time the Work is performed) are issued for the Project prior to the commencement of construction.

6.3 Contractor's Supervision

6.3.1 During progress of the Work, Contractor shall keep on the Premises, and at all other locations where any Work related to the Contract is being performed, an experienced and competent project manager and construction superintendent who are employees of the Contractor, to whom the District does not object and at least one of whom shall be fluent in English, written and verbal.

6.3.2 The project manager and construction superintendent shall both speak fluently the predominant language of the Contractor's employees.

6.3.3 Before commencing the Work herein, Contractor shall give written notice to District of the name of its project manager and construction superintendent. Neither the Contractor's project manager nor construction superintendent shall be changed except with prior written notice to District. If the Contractor's project manager and/or construction superintendent proves to be unsatisfactory to Contractor, or to District, any of the District's employees, agents, the Construction Manager, or the Architect, Contractor shall notify District in writing before any change occurs, but no less than two (2) business days prior. Any replacement of the project manager and/or construction superintendent shall be made promptly and must be satisfactory to the District. The Contractor's project manager and construction superintendent shall each represent Contractor, and all directions given to Contractor's project manager and/or construction superintendent shall be as binding as if given to Contractor.

6.3.4 Contractor shall give efficient supervision to Work, using its best skill and attention. Contractor shall carefully study and compare all Contract Documents, Drawings, Specifications, and other instructions and shall at once report to District, Construction Manager, and Architect any error, inconsistency, or omission that Contractor or its employees and Subcontractors may discover, in writing, with a copy to District's Project Inspector(s). The Contractor shall have responsibility for discovery of errors, inconsistencies, or omissions.

6.4 Duty to Provide Fit Workers

6.4.1 Contractor and Subcontractor(s) shall at all times enforce strict discipline and good order among their employees and shall not employ or work any unfit person or anyone not skilled in work assigned to that person. It shall be the responsibility of Contractor to ensure compliance with this requirement. District may require Contractor to permanently remove unfit persons from Project Site.

6.4.2 Any person in the employ of Contractor or Subcontractor(s) whom District may deem incompetent or unfit shall be excluded from working on the Project and shall not again be employed on the Project except with the prior written consent of District.

6.4.3 The Contractor shall furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work.

6.4.4 If Contractor intends to make any change in the name or legal nature of the Contractor's entity, Contractor must first notify the District in writing prior to making any contemplated change. The District shall determine in writing if Contractor's intended change is permissible while performing this Contract.

6.5 Field Office

6.5.1 Contractor shall provide a temporary office on the Work Site for the District's use exclusively, during the term of the Contract.

6.6 Purchase of Materials and Equipment

The Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from District to assure that there will be no delays.

6.7 Documents on Work

6.7.1 Contractor shall at all times keep on the Work Site, or at another location as the District may authorize in writing, one legible copy of all Contract Documents, including Addenda and Change Orders, and Titles 19 and 24 of the California Code of Regulations, the specified edition(s) of the Uniform Building Code, all approved Drawings, Plans, Schedules, and Specifications, and all codes and documents referred to in the Specifications, and made part thereof. These documents shall be kept in good order and available to District, Construction Manager, Architect, Architect's representatives, the Project Inspector(s), and all authorities having jurisdiction. Contractor shall be acquainted with and comply with the provisions of these titles as they relate to this Project. (See particularly the duties of Contractor, Title 24, Part 1,

California Code of Regulations, section 4-343.) Contractor shall also be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project, particularly Titles 8 and 17. Contractor shall coordinate with Architect and Construction Manager and shall submit its verified report(s) according to the requirements of Title 24.

6.7.2 Daily Job Reports.

6.7.2.1 Contractor shall maintain, at a minimum, at least one (1) set of Daily Job Reports on the Project. These must be prepared by the Contractor's employee(s) who are present on Site, and must include, at a minimum, the following information:

6.7.2.1.1 A brief description of all Work performed on that day.
6.7.2.1.2 A summary of all other pertinent events and/or occurrences on that day.
6.7.2.1.3 The weather conditions on that day.
6.7.2.1.4 A list of all Subcontractor(s) working on that day, including DIR registration numbers.
6.7.2.1.5 A list of each Contractor employee working on that day and the total hours worked for each employee.
6.7.2.1.6 A complete list of all equipment on Site that day, whether in use or not.
6.7.2.1.7 A complete list of all materials, supplies, and equipment delivered on that day.
6.7.2.1.8 A complete list of all inspections and tests performed on that day.

6.7.2.2 Each day Contractor shall provide a copy of the previous day's Daily Job Report to the District or the Construction Manager.

6.8 Preservation of Records

Contractor shall maintain, and District shall have the right to inspect, Contractor's financial records for the Project, including, without limitation, Job Cost Reports for the Project in compliance with the criteria set forth herein. The District shall have the right to examine and audit all Daily Job Reports or other Project records of Contractor's project manager(s), project superintendent(s), and/or project foreperson(s), all certified payroll records and/or related documents including, without limitation, Job Cost Reports, payroll, payment, timekeeping and tracking documents; all books, estimates, records, contracts, documents, bid documents, bid cost data, subcontract job cost reports, and other data of the Contractor, any Subcontractor, and/or supplier, including computations and projections related to bidding, negotiating, pricing, or performing the Work or Contract modification, in order to evaluate the accuracy, completeness, and currency of the cost, manpower, coordination,

supervision, or pricing data at no additional cost to the District. These documents may be duplicative and/or be in addition to any Bid Documents held in escrow by the District. The Contractor shall make available at its office at all reasonable times the materials described in this paragraph for the examination, audit, or reproduction until three (3) years after final payment under this Contract. Notwithstanding the provisions above, Contractor shall provide any records requested by any governmental agency, if available, after the time set forth above.

6.9 Integration of Work

6.9.1 Contractor shall do all cutting, fitting, patching, and preparation of Work as required to make its several parts come together properly, to fit it to receive or be received by work of other contractors, and to coordinate tolerances to various pieces of work, showing upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and shall conform them as District and/or Architect may direct.

6.9.2 Contractor shall make its own layout of lines and elevations and shall be responsible for the accuracy of both Contractor's and Subcontractors' work resulting therefrom.

6.9.3 Contractor and all Subcontractors shall take all field dimensions required in performance of the Work, and shall verify all dimensions and conditions on the Site. All dimensions affecting proper fabrication and installation of all Work must be verified prior to fabrication by taking field measurements of the true conditions. If there are any discrepancies between dimensions in drawings and existing conditions which will affect the Work, Contractor shall bring such discrepancies to the attention of the District and Architect for adjustment before proceeding with the Work. In doing so, it is recognized that Contractor is not acting in the capacity of a licensed design professional, and that Contractor's examination is made in good faith to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies in the Contract Documents or to ascertain compliance with applicable laws, building codes or regulations. Following receipt of written notice from Contractor, the District and/or Architect shall inform Contractor what action, if any, Contractor shall take with regard to such discrepancies.

6.9.4 All costs caused by noncompliant, defective, or delayed Work shall be borne by Contractor, inclusive of repair work.

6.9.5 Contractor shall not endanger any work performed by it or anyone else by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other contractor except with consent of District.

6.10 Notifications

6.10.1 Contractor shall notify the Architect and Project Inspector, in writing, of the commencement of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector. Forms are available on the DSA's website at: http://www.dgs.ca.gov/dsa/Forms.aspx.

6.10.2 Contractor shall notify the Architect and Project Inspector, in writing, of the completion of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or current version) to the Project Inspector.

6.11 Obtaining of Permits, Licenses and Registrations

Contractor shall secure and pay for all permits (except DSA), licenses, registrations, approvals and certificates necessary for prosecution of Work, including but not limited to those listed in the Special Conditions, if any, before the date of the commencement of the Work or before the permits, licenses, registrations, approvals and certificates are legally required to continue the Work without interruption. The Contractor shall obtain and pay, only when legally required, for all licenses, registrations, approvals, permits, inspections, and inspection certificates required to be obtained from or issued by any authority having jurisdiction over any part of the Work included in the Contract. All final permits, licenses, registrations, approvals and certificates shall be delivered to District before demand is made for final payment.

6.12 Royalties and Patents

6.12.1 Contractor shall obtain and pay, only when legally required, all royalties and license fees necessary for prosecution of Work before the earlier of the date of the commencement of the Work or the date that the license is legally required to continue the Work without interruption. Contractor shall defend suits or claims of infringement of patent, copyright, or other rights and shall hold the District, the Architect, and the Construction Manager harmless and indemnify them from loss on account thereof except when a particular design, process, or make or model of product is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process, or product is an infringement of a patent or copyright, the Contractor shall indemnify and defend the District, Architect and Construction Manager against any loss or damage unless the Contractor promptly informs the District of its information.

6.12.2 The review by the District or Architect of any method of construction, invention, appliance, process, article, device, or material of any kind shall be only its

adequacy for the Work and shall not approve use by the Contractor in violation of any patent or other rights of any person or entity.

6.13 Work to Comply With Applicable Laws and Regulations

6.13.1 Contractor shall give all notices and comply with the following specific laws, ordinances, rules, and regulations and all other applicable laws, ordinances, rules, and regulations bearing on conduct of Work as indicated and specified, including but not limited to the appropriate statutes and administrative code sections. If Contractor observes that Drawings and Specifications are at variance therewith, or should Contractor become aware of the development of conditions not covered by Contract Documents that may result in finished Work being at variance therewith, Contractor shall promptly notify District in writing and any changes deemed necessary by District shall be made as provided in Contract for changes in Work.

6.13.1.1 National Electrical Safety Code, U. S. Department of Commerce

6.13.1.2 National Board of Fire Underwriters' Regulations

6.13.1.3 International Building Code, latest addition, and the California Code of Regulations, title 24, and other amendments

6.13.1.4 Manual of Accident Prevention in Construction, latest edition, published by A.G.C. of America

6.13.1.5 Industrial Accident Commission's Safety Orders, State of California

6.13.1.6 Regulations of the State Fire Marshall (title 19, California Code of Regulations) and Pertinent Local Fire Safety Codes

6.13.1.7 Americans with Disabilities Act

6.13.1.8 Education Code of the State of California

6.13.1.9 Government Code of the State of California

6.13.1.10 Labor Code of the State of California, division 2, part 7, Public Works and Public Agencies

6.13.1.11 Public Contract Code of the State of California

6.13.1.12 California Art Preservation Act

6.13.1.13 U. S. Copyright Act

6.13.1.14 U. S. Visual Artists Rights Act

6.13.2 Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et seq.).

6.13.3 If Contractor performs any Work that it knew, or through exercise of reasonable care should have known, to be contrary to any applicable laws, ordinance, rules, or regulations, Contractor shall bear all costs arising therefrom and arising from the correction of said Work.

6.13.4 Where Specifications or Drawings state that materials, processes, or procedures must be approved by the DSA, State Fire Marshall, or other body or agency, Contractor shall be responsible for satisfying requirements of such bodies or agencies applicable at the time the Work is performed, and as determined by those bodies or agencies.

6.14 Safety/Protection of Persons and Property

6.14.1 The Contractor will be solely and completely responsible for conditions of the Work Site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours.

6.14.2 The wearing of hard hats will be mandatory at all times for all personnel on Site. Contractor shall supply sufficient hard hats to properly equip all employees and visitors.

6.14.3 Any construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Work Site.

6.14.4 Implementation and maintenance of safety programs shall be the sole responsibility of the Contractor.

6.14.5 The Contractor shall furnish to the District a copy of the Contractor's safety plan within the time frame indicated in the Contract Documents and specifically adapted for the Project.

6.14.6 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 Contract and shall take all necessary measures and be responsible for the proper care and completion and final acceptance by District. All Work shall be solely at Contractor's

risk with the exception of damage to the Work caused by "acts of God" as defined in Public Contract Code section 7105.

6.14.7 Contractor shall take, and require Subcontractors to take, all necessary precautions for safety of workers on the Project 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 premises where Work is being performed and to provide a safe and healthful place of employment. Contractor shall furnish, erect, and properly maintain at all times, all necessary safety devices, safeguards, construction canopies, signs, 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.

6.14.8 Hazards Control – Contractor shall store volatile wastes in covered metal containers and remove them from the Site daily. Contractor shall prevent accumulation of wastes that create hazardous conditions. Contractor shall provide adequate ventilation during use of volatile or noxious substances.

6.14.9 Contractor shall designate a responsible member of its organization on the Project, 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 to District by Contractor.

6.14.10 Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, Contractor shall correct such violation promptly.

6.14.11 Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

6.14.12 In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization, shall act, at its discretion, to prevent such threatened loss or injury. Any compensation claimed by Contractor on account of emergency work shall be determined by agreement.

6.14.13 All salvage materials will become the property of the Contractor and shall be removed from the Site unless otherwise called for in the Contract Documents. However, the District reserves the right to designate certain items of value that shall be turned over to the District unless otherwise directed by District.

6.14.14 All connections to public utilities and/or existing on-site services shall be made and maintained in such a manner as to not interfere with the continuing use of same by the District during the entire progress of the Work.

6.14.15 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, such as extreme heat, cold, rain, snow, dry winds, flooding, or dampness.

6.14.16 The Contractor shall protect and preserve the Work from all damage or accident, providing any temporary roofs, window and door coverings, boxings, or other construction as required by the Architect. The Contractor shall be responsible for existing structures, walks, roads, trees, landscaping, and/or improvements in working areas; and shall provide adequate protection therefore. If temporary removal is necessary of any of the above items, or damage occurs due to the Work, the Contractor shall replace same at his expense with same kind, quality, and size of Work or item damaged. This shall include any adjoining property of the District and others.

6.14.17 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.

6.14.18 Contractor shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of Architect, and shall not interfere with the Work or unreasonably encumber Premises or overload any structure with materials. Contractor shall enforce all instructions of District and Architect regarding signs, advertising, fires, and smoking, and require that all workers comply with all regulations while on Project Site.

6.14.19 Contractor, Contractor's employees, Subcontractors, Subcontractors' employees, or any person associated with the Work shall conduct themselves in a manner appropriate for a school site. No verbal or physical contact with neighbors, students, and faculty, profanity, or inappropriate attire or behavior will be permitted. District may require Contractor to permanently remove non-complying persons from Project Site.

6.14.20 Contractor shall take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed, Contractor shall have a civil engineer, registered as a professional engineer in California, replace them at no cost to District.

6.14.21 In the event that the Contractor enters into any agreement with owners of any adjacent property to enter upon the adjacent property for the purpose of performing the Work, Contractor shall fully indemnify, defend, and hold harmless each person, entity, firm, or agency that owns or has any interest in adjacent property. The form and content of the agreement of indemnification shall be approved by the District prior to the commencement of any Work on or about the adjacent property. The Contractor shall also indemnify the District as provided in the indemnification provision herein. These provisions shall be in addition to any other requirements of the owners of the adjacent property.

6.15 Working Evenings and Weekends

Contractor may be required to work increased hours, evenings, and/or weekends at no additional cost to the District. Contractor shall give the District seventy-two (72) hours' notice prior to performing any evening and/or weekend work. Contractor shall perform all evening and/or weekend work only upon District's approval and in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations. Contractor shall reimburse the District for any increased or additional Inspector charges as a result of Contractor's increased hours, or evening and/or weekend work.

6.16 Cleaning Up

6.16.1 The Contractor shall provide all services, labor, materials, and equipment necessary for protecting and securing the Work, all school occupants, furnishings, equipment, and building structure from damage until its completion and final acceptance by District. Dust barriers shall be provided to isolate dust and dirt from construction operations. At completion of the Work and portions thereof, Contractor shall clean to the original state any areas beyond the Work area that become dust laden as a result of the Work. The Contractor must erect the necessary warning signs and barricades to ensure the safety of all school occupants. The Contractor at all times must maintain good housekeeping practices to reduce the risk of fire damage and must make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed or where there is an increased risk of fire.

6.16.2 Contractor at all times shall keep Premises, including property immediately adjacent thereto, free from debris such as waste, rubbish (including personal rubbish of workers, e.g., food wrappers, etc.), and excess materials and equipment caused by the Work. Contractor shall not leave debris under, in, or about the Premises (or surrounding property or neighborhood), but shall promptly remove same from the Premises on a daily basis. If Contractor fails to clean up, District may do so and the cost thereof shall

be charged to Contractor. If Contract is for work on an existing facility, Contractor shall also perform specific clean-up on or about the Premises upon request by the District as it deems necessary for the continuing education process. Contractor shall comply with all related provisions of the Specifications.

6.16.3 If the Construction Manager, Architect, or District observes the accumulation of trash and debris, the District will give the Contractor a 24-hour written notice to mitigate the condition.

6.16.4 Should the Contractor fail to perform the required clean-up, or should the clean-up be deemed unsatisfactory by the District, the District will then perform the clean-up. All cost associated with the clean-up work (including all travel, payroll burden, and costs for supervision) will be deducted from the Contract Price, or District may withhold those amounts from payment(s) to Contractor.

7. SUBCONTRACTORS

7.1 Contractor shall provide the District with information for all Subcontracts as indicated in the Contractor's Submittals and Schedules Section herein.

7.2 No contractual relationship exists between the District and any Subcontractor, supplier, or sub-subcontractor by reason of this Contract.

7.3 Contractor agrees to bind every Subcontractor by terms of this Contract as far as those terms that are applicable to Subcontractor's work including, without limitation, all labor, wage & hour, apprentice and related provisions and requirements. If Contractor shall subcontract any part of this Contract, 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, including Subcontractor caused Project delays, as it is for acts and omissions of persons directly employed by Contractor. The divisions or sections of the Specifications and/or the arrangement of the drawings are not intended to control the Contractor in dividing the Work among Subcontractors or limit the work performed by any trade.

7.4 District's consent to, or approval of, or failure to object to, any Subcontractor under this Contract shall not in any way relieve Contractor of any obligations under this Contract and no such consent shall be deemed to waive any provisions of this Contract.

7.5 Contractor is directed to familiarize itself with sections 4100 through 4114 of the Public Contract Code of the State of California, as regards subletting and subcontracting, and to comply with all applicable requirements therein. In addition, Contractor is directed to familiarize itself with sections 1720 through 1861 of the Labor Code of the State of

California, as regards the payment of prevailing wages and related issues, and to comply with all applicable requirements therein including, without limitation, section 1775 and the Contractor's and Subcontractors' obligations and liability for violations of prevailing wage law and other applicable laws.

7.6 No Contractor whose Bid is accepted shall, without consent of the awarding authority and in full compliance with section 4100 et seq. of the Public Contract Code, including, without limitation, sections 4107, 4107.5, and 4109 of the Public Contract Code, and section 1771.1 of the Labor Code, either:

7.6.1 Substitute any person as a Subcontractor in place of the Subcontractor designated in the original Bid; or

7.6.2 Permit any Subcontract to be assigned or transferred, or allow any portion of the Work to be performed by anyone other than the original Subcontractor listed in the Bid; or

7.6.3 Sublet or subcontract any portion of the Work in excess of one-half of one percent (0.5%) of the Contractor's total bid as to which his original bid did not designate a Subcontractor.

7.7 The Contractor shall be responsible for the coordination of the trades, Subcontractors, sub-subcontractors, and material or equipment suppliers working on the Project.

7.7.1 If the Contract is valued at $1 million or more and uses, or plans to use, state bond funds, then Contractor is responsible for ensuring that first tier Subcontractors holding C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43, and/or C-46 licenses are prequalified by the District to work on the Project pursuant to Public Contract Code section 20111.6.

7.7.2 Contractor is responsible for ensuring that all Subcontractors are properly registered as public works contractors by the Department of Industrial Relations.

7.8 Contractor is solely responsible for settling any differences between the Contractor and its Subcontractor(s) or between Subcontractors.

7.9 Contractor must include in all of its subcontracts the assignment provisions as indicated in the Termination section of these General Conditions.

8. OTHER CONTRACTS/CONTRACTORS

8.1 District reserves the right to let other contracts, and/or to perform work with its own forces, in connection with the Project. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate and connect Contractor's Work with the work of other contractors.

8.2 In addition to Contractor's obligation to protect its own Work, Contractor shall protect the work of any other contractor that Contractor encounters while working on the Project.

8.3 If any part of Contractor's Work depends for proper execution or results upon work of District or any other contractor, the Contractor shall inspect and, before proceeding with its Work, promptly report to the District in writing any defects in District's or any other contractor's work that render Contractor's Work unsuitable for proper execution and results. Contractor shall be held accountable for damages to District for District's or any other contractor's work that Contractor failed to inspect or should have inspected. Contractor's failure to inspect and report shall constitute Contractor's acceptance of all District's or any other contractor's work as fit and proper for reception of Contractor's Work, except as to defects that may develop in District's or any other contractor's work after execution of Contractor's Work and not caused by execution of Contractor's Work.

8.4 To ensure proper execution of its subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the District in writing any discrepancy between that executed work and the Contract Documents.

8.5 Contractor shall ascertain to its own satisfaction the scope of the Project and nature of District's or 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 Contract in light of the other contracts, if any.

8.6 Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy of the Site, the Premises, or of the Project. Contractor shall not cause any unnecessary hindrance or delay to the use and/or school operation(s) of the Premises and/or to District or any other contractor working on the Project. If simultaneous execution of any contract or school operation is likely to cause interference with performance of Contractor's Contract, Contractor shall coordinate with those contractor(s), person(s), and/or entity(s) and shall notify the District of the resolution.

9. DRAWINGS AND SPECIFICATIONS

9.1 A complete list of all Drawings that form a part of the Contract is to be found as an index on the Drawings themselves, and/or may be provided to the Contractor and/or in the Table of Contents.

9.2 Materials or Work described in words that so applied have a well-known technical or trade meaning shall be deemed to refer to recognized standards, unless noted otherwise.

9.3 **Trade Name or Trade Term.** It is not the intention of this Contract 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 "trade name" or "trade term" shall be considered a sufficient notice to Contractor that it will be required to complete the work so named, complete, finished, and operable, with all its appurtenances, according to the best practices of the trade.

9.4 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 therefor, as per best practices of the trade(s) involved, unless specifically noted otherwise.

9.5 Contract Documents are complementary, and what is called for by one shall be binding as if called for by all. As such, Drawings and Specifications are intended to be fully cooperative and to agree. However, if Contractor observes that Drawings and Specifications are in conflict with the Contract Documents, Contractor shall promptly notify District and Architect in writing, and any necessary changes shall be made as provided in the Contract Documents.

9.6 In the case of discrepancy or ambiguity in the Contract Documents, the order of precedence in the Agreement shall prevail. However, in the case of discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications. In case of ambiguity, conflict, or lack of information, District will furnish clarifications with reasonable promptness.

9.7 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 Contract Documents, the laws, ordinances, rules, and regulations shall be considered as a part of the Contract within the limits specified. Contractor shall bear all expense of correcting work done contrary to said laws, ordinances, rules, and regulations.

9.8 As required by Section 4-317(c), Part 1, Title 24, CCR: "Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the DSA-approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work."

9.9 Ownership of Drawings

All copies of Plans, Drawings, Designs, Specifications, and copies of other incidental architectural and engineering work, or copies of other Contract Documents furnished by District, are the property of District. They are not to be used by Contractor in other work and, with the exception of signed sets of Contract Documents, are to be returned to District on request at completion of Work, or may be used by District as it may require without any additional costs to District. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. District hereby grants the Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings prepared for the Project in the execution of their Work under the Contract Documents.

10. CONTRACTOR'S SUBMITTALS AND SCHEDULES

Contractor's submittals shall comply with the provisions and requirements of the Specifications including, without limitation Submittals.

10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values

10.1.1 Within **TEN (10)** calendar days after the date of the Notice to Proceed (unless otherwise specified in the Specifications), the Contractor shall prepare and submit to the District for review, in a form supported by sufficient data to substantiate its accuracy as the District may require:

10.1.1.1 Preliminary Schedule. A preliminary schedule of construction indicating the starting and completion dates of the various stages of the Work, including any information and following any form as may be specified in the Specifications. Once approved by District, this shall become the Construction Schedule. This schedule shall include and identify all tasks that are on the Project's critical path with a specific determination of the start and completion of each critical path task as well as all Contract milestones and each milestone's completion date(s) as may be required by the District.

10.1.1.1.1 The District is not required to approve a preliminary schedule of construction with early completion, i.e., one that shows early completion dates for the Work and/or milestones. Contractor shall not be entitled to extra compensation if the District approves a Construction Schedule with an early completion date and Contractor completes the Project beyond the date shown in the schedule but within the Contract Time. A Construction Schedule showing the Work completed in less than the Contract Time, the time between the early completion date and the end of the Contract Time shall be Float.

10.1.1.2 Preliminary Schedule of Values. A preliminary schedule of values for all of the Work, which must include quantities and prices of items aggregating the Contract Price and must subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Unless the Special Conditions contain different limits, this preliminary schedule of values shall include, at a minimum, the following information and the following structure:

10.1.1.2.1 Divided into at least the following categories:

10.1.1.2.1.1 Overhead and profit;
10.1.1.2.1.2 Supervision;
10.1.1.2.1.3 General conditions;
10.1.1.2.1.4 Layout;
10.1.1.2.1.5 Mobilization;
10.1.1.2.1.6 Submittals;
10.1.1.2.1.7 Bonds and insurance;
10.1.1.2.1.8 Close-out/Certification documentation;
10.1.1.2.1.9 Demolition;
10.1.1.2.1.10 Installation;
10.1.1.2.1.11 Rough-in;
10.1.1.2.1.12 Finishes;
10.1.1.2.1.13 Testing;
10.1.1.2.1.14 Punchlist and District acceptance.

10.1.1.2.2 And also divided by each of the following areas:

10.1.1.2.2.1 Site work;
10.1.1.2.2.2 By each building;
10.1.1.2.2.3 By each floor.

10.1.1.2.3 The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

10.1.1.2.3.1 Mobilization and layout combined to equal not more than 1%;

10.1.1.2.3.2 Submittals, samples and shop drawings combined to equal not more than 3%;

10.1.1.2.3.3 Bonds and insurance combined to equal not more than 2%.

10.1.1.2.4 Closeout documentation shall have a value in the preliminary schedule of not less than 5%.

10.1.1.2.5 Notwithstanding any provision of the Contract Documents to the contrary, payment of the Contractor's overhead, supervision, general conditions costs, and profit, as reflected in the Cost Breakdown, shall be paid based on percentage complete, with the disbursement of Progress Payments and the Final Payment.

10.1.1.2.6 Contractor shall certify that the preliminary schedule of values as submitted to the District is accurate and reflects the costs as developed in preparing Contractor's bid. For example, without limiting the foregoing, Contractor shall not "front-load" the preliminary schedule of values with dollar amounts greater than the value of activities performed early in the Project.

10.1.1.2.7 The preliminary schedule of values shall be subject to the District's review and approval of the form and content thereof. In the event that the District objects to any portion of the preliminary schedule of values, the District shall notify the Contractor, in writing, of the District's objection(s) to the preliminary schedule of values. Within five (5) calendar days of the date of the District's written objection(s), Contractor shall submit a revised preliminary schedule of values to the District for review and approval. The foregoing procedure for the preparation, review and approval of the preliminary schedule of values shall continue until the District has approved the entirety of the preliminary schedule of values.

10.1.1.2.8 Once the preliminary schedule of values is approved by the District, this shall become the Schedule of Values. The Schedule of Values shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the District, which may be granted or withheld in the sole discretion of the District.

10.1.1.3 **Preliminary Schedule of Submittals.** A preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals. Once approved by District, this shall become the Submittal Schedule. All submittals shall

be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those submittals shall be forwarded to the District so as not to delay the Construction Schedule. Upon request by the District, Contractor shall provide an electronic copy of all submittals to the District. All submittals shall be submitted no later than 90 days after the Notice to Proceed.

10.1.1.4 Safety Plan. Contractor's Safety Plan specifically adapted for the Project. Contractor's Safety Plan shall comply with the following requirements:

10.1.1.4.1 All applicable requirements of California Division of Occupational Safety and Health ("CalOSHA") and/or of the United States Occupational Safety and Health Administration ("OSHA").

10.1.1.4.2 All provisions regarding Project safety, including all applicable provisions in these General Conditions.

10.1.1.4.3 Contractor's Safety Plan shall be in English and in the language(s) of the Contractor's and its Subcontractors' employees.

10.1.1.5 Complete Registered Subcontractors List. The name, address, telephone number, facsimile number, California State Contractors License number, classification, DIR registration number and monetary value of all Subcontracts of any tier for parties furnishing labor, material, or equipment for completion of the Project.

10.1.2 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.1.3 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.1.4 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.1.5 All submittals and schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.2 Monthly Progress Schedule(s)

10.2.1 Contractor shall provide Monthly Progress Schedule(s) to the District. A Monthly Progress Schedule shall update the approved Construction Schedule or the last

Monthly Progress Schedule, showing all work completed and to be completed as well as updating the Registered Subcontractors List. The monthly Progress Schedule shall be sent within the timeframe requested by the District and shall be in a format acceptable to the District and contain a written narrative of the progress of work that month and any changes, delays, or events that may affect the work. The process for District approval of the Monthly Progress Schedule shall be the same as the process for approval of the Construction Schedule.

10.2.2 Contractor shall submit Monthly Progress Schedule(s) with all payment applications.

10.2.3 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.2.4 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.2.5 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.2.6 All submittals and schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.3 Material Safety Data Sheets (MSDS)

Contractor is required to ensure Material Safety Data Sheets are available in a readily accessible place at the Work Site for any material requiring a Material Safety Data Sheet per the federal "Hazard Communication" standard, or employees' "right to know" law. The Contractor is also required to ensure proper labeling on substances brought onto the job site and that any person working with the material or within the general area of the material is informed of the hazards of the substance and follows proper handling and protection procedures. Two additional copies of the Material Safety Data Sheets shall also be submitted directly to the District.

11. SITE ACCESS, CONDITIONS, AND REQUIREMENTS

11.1 Site Investigation

Before bidding on this Work, Contractor shall make a careful investigation of the Site and thoroughly familiarize itself with the requirements of the Contract. By the act of submitting a bid for the Work included in this Contract, Contractor shall be deemed to have made a

complete study and investigation, and to be familiar with and accepted the existing conditions of the Site.

Prior to commencing the Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey. This electronic record shall serve as a basis for determining any damages caused by the Contractor during the Project. The Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.

11.2 Soils Investigation Report

11.2.1 When a soils investigation report obtained from test holes at Site or for the Project is available, that report may be available to the Contractor but shall not be a part of this Contract and shall not alleviate or excuse the Contractor's obligation to perform its own investigation. Any information obtained from that report or any information given on Drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only, is not guaranteed, does not form a part of this Contract, and Contractor may not rely thereon. By submitting its bid, Contractor acknowledges that it has made visual examination of Site and has made whatever tests Contractor deems appropriate to determine underground condition of soil.

11.2.2 Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages if, during progress of Work, Contractor encounters subsurface or latent conditions at Site materially differing from those shown on Drawings or indicated in Specifications, or for unknown conditions of an unusual nature that differ materially from those ordinarily encountered in the work of the character provided for in Plans and Specifications, except as indicated in the provisions of these General Conditions regarding trenches, trenching, and/or existing utility lines.

11.3 Access to Work

District and its representatives shall at all times have access to Work wherever it is in preparation or progress, including storage and fabrication. Contractor shall provide safe and proper facilities for such access so that District's representatives may perform their functions.

11.4 Layout and Field Engineering

11.4.1 All field engineering required for layout of this Work and establishing grades for earthwork operations shall be furnished by Contractor at its expense. This Work shall

be done by a qualified, California-registered civil engineer approved in writing by District and Architect. Any required Record and/or As-Built Drawings of Site development shall be prepared by the approved civil engineer.

11.4.2 The Contractor shall be responsible for having ascertained pertinent local conditions such as location, accessibility, and general character of the Site and for having satisfied itself as to the conditions under which the Work is to be performed. Contractor shall follow best practices, including but not limited to potholing to avoid utilities. District shall not be liable for any claim for allowances because of Contractor's error, failure to follow best practices, or negligence in acquainting itself with the conditions at the Site.

11.4.3 Contractor shall protect and preserve established benchmarks and monuments and shall make no changes in locations without the prior written approval of District. Contractor shall replace any benchmarks or monuments that are lost or destroyed subsequent to proper notification of District and with District's approval.

11.5 Utilities

Utilities shall be provided as indicated in the Specifications.

11.6 Sanitary Facilities

Sanitary facilities shall be provided as indicated in the Specifications.

11.7 Surveys

Contractor shall provide surveys done by a California-licensed civil engineer surveyor to determine locations of construction, grading, and site work as required to perform the Work.

11.8 Regional Notification Center

The Contractor, except in an emergency, shall contact the appropriate regional notification center at least two (2) days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement that is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and/or carried out by the Contractor unless an inquiry identification number has been assigned to the Contractor or any Subcontractor and the Contractor has given the District the identification number. Any damages arising from Contractor's failure to make appropriate notification shall be at the sole risk and expense of the Contractor. Any delays caused by failure to make appropriate notification shall be at the sole risk of the Contractor and shall not be considered for an extension of the Contract Time.

11.9 Existing Utility Lines

11.9.1 Pursuant to Government Code section 4215, District assumes the responsibility for removal, relocation, and protection of main or trunk utility lines and facilities located on the construction Site at the time of commencement of construction under this Contract with respect to any such utility facilities that are not identified in the Plans and Specifications. Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of District or the owner of a utility to provide for removal or relocation of such utility facilities.

11.9.2 Locations of existing utilities provided by District shall not be considered exact, but approximate within a reasonable margin and shall not relieve Contractor of responsibilities to exercise reasonable care or costs of repair due to Contractor's failure to do so. District shall compensate Contractor for the costs of locating, repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment necessarily idle during such work.

11.9.3 No provision herein shall be construed to preclude assessment against Contractor for any other delays in completion of the Work. Nothing in this Article shall be deemed to require District to indicate the presence of existing service laterals, appurtenances, or other utility lines, within the exception of main or trunk utility lines or whenever the presence of these utilities on the Site of the construction Project 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.

11.9.4 If Contractor, while performing Work under this Contract, discovers utility facilities not identified by District in Contract Plans and Specifications, Contractor shall immediately notify the District and the utility in writing. The cost of repair for damage to above-mentioned visible facilities without prior written notification to the District shall be borne by the Contractor.

11.10 Notification

Contractor understands, acknowledges and agrees that the purpose for prompt notification to the District pursuant to these provisions is to allow the District to investigate the condition(s) so that the District shall have the opportunity to decide how the District desires to proceed as a result of the condition(s). Accordingly, failure of Contractor to promptly notify the District in writing, pursuant to these provisions, shall constitute Contractor's waiver of any claim for damages or delay incurred as a result of the condition(s).

11.11 Hazardous Materials

Contractor shall comply with all provisions and requirements of the Contract Documents related to hazardous materials including, without limitation, Hazardous Materials Procedures and Requirements.

11.12 No Signs

Neither the Contractor nor any other person or entity shall display any signs not required by law or the Contract Documents at the Site, fences trailers, offices, or elsewhere on the Site without specific prior written approval of the District.

12. TRENCHES

12.1 Trenches Greater Than Five Feet

Pursuant to Labor Code section 6705, if the Contract Price exceeds $25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, promptly submit to the District and/or a registered civil or structural engineer employed by the District or Architect, a detailed plan, stamped by a licensed engineer retained by the Contractor, showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

12.2 Excavation Safety

If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but 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 the District or by the person to whom authority to accept has been delegated by the District.

12.3 No Tort Liability of District

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the District or any of its employees.

12.4 No Excavation without Permits

The Contractor shall not commence any excavation Work until it has secured all necessary permits including the required CalOSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

12.5 Discovery of Hazardous Waste and/or Unusual Conditions

12.5.1 Pursuant to Public Contract Code section 7104, if the Work involves digging trenches or other excavations that extend deeper than four feet below the Surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any:

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

12.5.1.2 Subsurface or latent physical conditions at the Site differing from those indicated.

12.5.1.3 Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

12.5.2 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 herein.

12.5.3 In the event that a dispute arises between 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 Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law that pertain to the resolution of disputes and protests.

13. INSURANCE AND BONDS

13.1 Insurance

Unless different provisions and/or limits are indicated in the Special Conditions, all insurance required of Contractor and/or its Subcontractor(s) shall be in the amounts and include the provisions set forth herein.

13.1.1 Commercial General Liability and Automobile Liability Insurance

13.1.1.1 Contractor shall procure and maintain, during the life of this Contract, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from, or in connection with, operations under this Contract. This coverage shall be provided in a form at least as broad as Insurance Services (ISO) Form CG 0001 11188. Contractor shall ensure that Products Liability and Completed Operations coverage, Fire Damage Liability coverage, and Automobile Liability Insurance coverage including owned, non-owned, and hired automobiles, are included within the above policies and at the required limits, or Contractor shall procure and maintain these coverages separately.

13.1.1.2 Contractor's deductible or self-insured retention for its Commercial General Liability Insurance policy shall not exceed $25,000 unless approved in writing by District.

13.1.1.3 All such policies shall be written on an occurrence form.

13.1.2 <u>Excess Liability Insurance</u>

13.1.2.1 If Contractor's underlying policy limits are less than required, subject to 13.1.2.3 below, Contractor may procure and maintain, during the life of this Contract, an Excess Liability Insurance Policy to meet the policy limit requirements of the required policies in order to satisfy, in the aggregate with its underlying policy, the insurance requirements herein..

13.1.2.2 There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Excess Liability Insurance Policy. Any Excess Liability Insurance Policy shall be written on a following form and shall protect Contractor, District, State, Construction Manager(s), Project Manager(s), and Architect(s) in amounts and including the provisions as set forth in the Supplementary Conditions (if any) and/or Special Conditions, and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

13.1.2.3 The District, in its sole discretion, may accept the Excess Liability Insurance Policy that brings Contractor's primary limits to the minimum requirements herein.

13.1.3 <u>Subcontractor(s):</u> Contractor shall require its Subcontractor(s), if any, to procure and maintain Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance (if Subcontractor elects to satisfy, in part the insurance required herein by procuring and maintaining an Excess Liability Insurance

Policy) with forms of coverage and limits equal to the amounts required of the Contractor.

13.1.4 Workers' Compensation and Employers' Liability Insurance

13.1.4.1 In accordance with provisions of section 3700 of the California Labor Code, the Contractor and every Subcontractor shall be required to secure the payment of compensation to its employees.

13.1.4.2 Contractor shall procure and maintain, during the life of this Contract, Workers' Compensation Insurance and Employers' Liability Insurance for all of its employees engaged in work under this Contract, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. Contractor shall require its Subcontractor(s), if any, to procure and maintain Workers' Compensation Insurance and Employers' Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by Contractor's insurance. If any class of employee or employee engaged in Work under this Contract, on or at the Site of the Project, is not protected under the Workers' Compensation Insurance, Contractor shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.

13.1.5 Builder's Risk Insurance: Builder's Risk "All Risk" Insurance

Contractor shall procure and maintain, during the life of this Contract, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, rain, dust, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

13.1.6 Pollution Liability Insurance

13.1.6.1 Contractor shall procure and maintain Pollution Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, including natural resource damage, cleanup costs, removal, storage, disposal, and/or use of the pollutant arising from operations under this Contract, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. Coverage shall apply to sudden and/or gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants, including asbestos. This coverage shall be provided in a form at least as broad as Insurance Services Offices, Inc. (ISO) Form CG 2415, or Contractor shall procure and maintain these coverages separately.

13.1.6.2 Contractor warrants that any retroactive date applicable to coverage under the policy shall predate the effective date of the Contract and that continuous coverage will be maintained or an extended reporting or discovery period will be exercised for a period of three (3) years, beginning from the time that the Work under the Contract is completed.

13.1.6.3 If Contractor is responsible for removing any pollutants from a site, then Contractor shall ensure that Any Auto, including owned, non-owned, and hired, is included within the above policies and at the required limits, to cover its automobile exposure from transporting the pollutants from the site to an approved disposal site. This coverage shall include the Motor Carrier Act Endorsement, MCS 90.

13.1.7 Proof of Insurance and Other Requirements: Endorsements and Certificates

13.1.7.1 Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract, until Contractor and its Subcontractor(s) have procured all required insurance and Contractor has delivered in duplicate to the District complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the District has approved these documents.

13.1.7.2 Endorsements, certificates, and insurance policies shall include the following:

13.1.7.2.1 A clause stating the following, or other language acceptable to the District:

"This policy shall not be canceled until written notice to District, Architect, and Construction Manager stating date of the cancellation by the insurance carrier. Date of cancellation may not be less than thirty (30) days after date of mailing notice."

13.1.7.2.2 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.

13.1.7.2.3 All endorsements, certificates and insurance policies shall state that District, its trustees, employees and agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s) and Architect(s) are named additional insureds under all policies except Workers' Compensation Insurance and Employers' Liability Insurance.

13.1.7.3 No policy shall be amended, canceled or modified, and the coverage amounts shall not be reduced, until Contractor or Contractor's broker has provided written notice to District, Architect(s), and Construction Manager(s) stating date of the amendment, modification, cancellation or reduction, and a description of the change. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.

13.1.7.4 Insurance written on a "claims made" basis shall be retroactive to a date that coincides with or precedes Contractor's commencement of Work, including subsequent policies purchased as renewals or replacements. Said policy is to be renewed by the Contractor and all Subcontractors for a period of five (5) years following completion of the Work or termination of this Agreement. Such insurance must have the same coverage and limits as the policy that was in effect during the term of this Agreement, and will cover the Contractor and all Subcontractors for all claims made.

13.1.7.5 Contractor's and Subcontractors' insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its trustees, employees and/or agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

13.1.7.6 All endorsements shall waive any right to subrogation against any of the named additional insureds.

13.1.7.7 Unless otherwise stated in the Special Conditions, all of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than **A: VII**.

13.1.7.8 The insurance requirements set forth herein shall in no way limit the Contractor's liability arising out of or relating to the performance of the Work or related activities.

13.1.7.9 Failure of Contractor and/or its Subcontractor(s) to comply with the insurance requirements herein shall be deemed a material breach of the Contract.

13.1.8 Insurance Policy Limits

Unless different limits are indicated in the Special Conditions, the limits of insurance shall not be less than the following amounts:

Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	$2,000,000 per occurrence; $4,000,000 aggregate
Automobile Liability	Any Auto – Combined Single Limit	$1,000,000
Workers' Compensation		Statutory limits pursuant to State law
Employers' Liability		$1,000,000
Builder's Risk (Course of Construction)		Issued for the value and scope of Work indicated herein.
Pollution Liability		$1,000,000 per claim; $2,000,000 aggregate

13.2 Contract Security - Bonds

13.2.1 Contractor shall furnish two surety bonds issued by a California admitted surety insurer as follows:

13.2.1.1 Performance Bond: A bond in an amount at least equal to one hundred percent (100%) of Contract Price as security for faithful performance of this Contract.

13.2.1.2 Payment Bond: A bond in an amount at least equal to one hundred percent (100%) of the Contract Price as security for payment of persons performing labor and/or furnishing materials in connection with this Contract.

13.2.2 Cost of bonds shall be included in the Bid and Contract Price.

13.2.3 All bonds related to this Project shall be in the forms set forth in these Contract Documents and shall comply with all requirements of the Contract Documents, including, without limitation, the bond forms.

14. WARRANTY/GUARANTEE/INDEMNITY

14.1 Warranty/Guarantee

14.1.1 The Contractor shall obtain and preserve for the benefit of the District, manufacturer's warranties on materials, fixtures, and equipment incorporated into the Work.

14.1.2 In addition to guarantees required elsewhere, Contractor shall, and hereby does guarantee and warrant all Work furnished on the job against all defects for a period of **ONE (1)** year after the later of the following dates, unless a longer period is provided for in the Contract Documents:

14.1.2.1 The acceptance by the District's governing board of the Work, subject to these General Conditions, or

14.1.2.2 The date that commissioning for the Project, if any, was completed.

At the District's sole option, Contractor shall repair or replace any and all of that Work, together with any other Work that may be displaced in so doing, that may prove defective in workmanship and/or materials within a **ONE (1)** year period from date of completion as defined above, unless a longer period is provided for in the Contract Documents, without expense whatsoever to District. In the event of failure of Contractor and/or Surety to commence and pursue with diligence said replacements or repairs within ten (10) days after being notified in writing, Contractor and Surety hereby acknowledge and agree that District is authorized to proceed to have defects repaired and made good at expense of Contractor and/or Surety who hereby agree to pay costs and charges therefore immediately on demand.

14.1.3 If, in the opinion of District, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to District or to prevent interruption of operations of District, District will attempt to give the notice required above. If Contractor or Surety cannot be contacted or neither complies with

District's request for correction within a reasonable time as determined by District, District may, notwithstanding the above provision, proceed to make any and all corrections and/or provide attentions the District believes are necessary. The costs of correction or attention shall be charged against Contractor and Surety of the guarantees provided in this Article or elsewhere in this Contract.

14.1.4 The above provisions do 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 shall furnish to District all appropriate guarantee or warranty certificates as indicated in the Specifications or upon request by District.

14.1.5 Nothing herein shall limit any other rights or remedies available to District.

14.2 Indemnity and Defense

14.2.1 To the furthest extent permitted by California law, the Contractor shall indemnify, keep and hold harmless the District, the Architect(s), and the Construction Manager(s), their respective consultants, separate contractors, board members, officers, representatives, , agents, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, injury, damages, losses, and expenses ("Claims"), including but not limited to attorney's fees, caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers. However, the Contractor's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent the Claim(s) is/are caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. This indemnification and hold harmless obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist or arise as to any Indemnitee or other person described herein. This indemnification and hold harmless obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR.

14.2.2 To the furthest extent permitted by California law, Contractor shall also defend Indemnitees, at its own expense, including but not limited to attorneys' fees and costs, against all Claims caused by, arising out of, resulting from, or incidental to, in

whole or in part, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers. However, the Contractor's defense obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. The District shall have the right to accept or reject any legal representation that Contractor proposes to defend the Indemnitees. If any Indemnitee provides its own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, Contractor shall reimburse such Indemnitee for any expenditures. Contractor's defense obligation shall not be construed to negate, abridge, or otherwise reduce any right or obligation of defense that would otherwise exist as to any Indemnitee or other person described herein. Contractor's defense obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR. The Contractor shall give prompt notice to the District in the event of any Claim(s).

14.2.3 Without limitation of the provisions herein, if the Contractor's obligation to indemnify and hold harmless the Indemnitees or its obligation to defend Indemnitees as provided herein shall be determined to be void or unenforceable, in whole or in part, it is the intention of the parties that these circumstances shall not otherwise affect the validity or enforceability of the Contractor's agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein. Further, the Contractor shall be and remain fully liable on its agreements and obligations herein to the fullest extent permitted by law.

14.2.4 Pursuant to Public Contract Code section 9201, the District shall provide timely notification to Contractor of the receipt of any third-party Claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

14.2.5 In any and all Claims against any of the Indemnitees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the Contractor's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

14.2.6 The District may retain so much of the moneys due the Contractor as shall be considered necessary, until disposition of any such Claims or until the District, Architect(s) and Construction Manager(s) have received written agreement from the Contractor that they will unconditionally defend the District, Architect(s) and Construction Manager(s), their respective officers, agents and employees, and pay any damages due by reason of settlement or judgment.

14.2.7 The Contractor's defense and indemnification obligations hereunder shall survive the completion of Work, the warranty/guarantee period, and the termination of the Contract.

15. TIME

15.1 Notice to Proceed

15.1.1 District may issue a Notice to Proceed within ninety (90) days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

15.1.2 In the event that the District desires to postpone issuing the Notice to Proceed beyond ninety (90) days from the date of the Notice of Award, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed.

15.1.3 If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to Contractor, Contractor may terminate the Contract. Contractor's termination due to a postponement shall be by written notice to District within ten (10) days after receipt by Contractor of District's notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.

15.2 Computation of Time / Adverse Weather

15.2.1 The Contractor will only be allowed a time extension for Adverse Weather conditions if requested by Contractor in compliance with the time extension request procedures and only if all of the following conditions are met:

15.2.1.1 The weather conditions constitute Adverse Weather, as defined herein and further specified in the Special Conditions;

15.2.1.2 Contractor can verify that the Adverse Weather caused delays in excess of five (5) hours of the indicated labor required to complete the scheduled tasks of Work on the day affected by the Adverse Weather;

15.2.1.3 The Contractor's crew is dismissed as a result of the Adverse Weather;

15.2.1.4 Said delay adversely affects the critical path in the Construction Schedule; and

15.2.1.5 Exceeds twelve (12) days of delay per year.

15.2.2 If the aforementioned conditions are met, a non-compensable day-for-day extension will only be allowed for those days in excess of those indicated in the Special Conditions.

15.2.3 The Contractor shall work seven (7) days per week, if necessary, irrespective of inclement weather, to maintain access and the Construction Schedule, and to protect the Work under construction from the effects of Adverse Weather, all at no further cost to the District.

15.2.4 The Contract Time has been determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located.

15.3 Hours of Work

15.3.1 Sufficient Forces

Contractor and Subcontractors shall continuously furnish sufficient and competent work forces with the required levels of familiarity with the Project and skill, training and experience to ensure the prosecution of the Work in accordance with the Construction Schedule.

15.3.2 Performance During Working Hours

Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the District and approval of any required governmental agencies.

15.3.3 No Work during State Testing

Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests. The District or District's Representative will provide Contractor with a schedule of test dates concurrent with the District's issuance of the Notice to Proceed, or as soon as test dates are made available to the District.

15.4 Progress and Completion

15.4.1 Time of the Essence

Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

15.4.2 No Commencement Without Insurance or Bonds

The Contractor shall not commence operations on the Project or elsewhere prior to the effective date of insurance and bonds. The date of commencement of the Work shall not be changed by the effective date of such insurance or bonds. If Contractor commences Work without insurance and bonds, all Work is performed at Contractor's peril and shall not be compensable until and unless Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to District claim for damages.

15.5 Schedule

Contractor shall provide to District, Construction Manager, and Architect a schedule in conformance with the Contract Documents and as required in the Notice to Proceed and the Contractor's Submittals and Schedules section of these General Conditions.

15.6 Expeditious Completion

The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time.

16. EXTENSIONS OF TIME – LIQUIDATED DAMAGES

16.1 Liquidated Damages

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. If the Work is not completed within the time specified in the Contract Documents, it is understood that the District will suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed the Contractor shall pay to District as fixed and liquidated damages, and not as a penalty, the amount set forth in the Agreement for each calendar day of delay in completion. Contractor and its Surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

16.2 Excusable Delay

16.2.1 Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault of Contractor or its Subcontractors, including acts of God as defined in Public Contract Code section 7105, acts of enemy, epidemics, and quarantine restrictions. Contractor shall, within five (5) calendar days of beginning of any delay, notify District in writing of causes of delay including documentation and facts explaining the delay and the direct correlation between the cause and effect. District shall review the facts and extent of any delay and shall grant extension(s) of time for completing Work when, in its judgment, the findings of fact justify an extension. Extension(s) of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted if Contractor has timely submitted the Construction Schedule as required herein.

16.2.2 Contractor shall notify the District pursuant to the claims provisions in these General Conditions of any anticipated delay and its cause. Following submission of a claim, the District may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

16.2.3 In the event the Contractor requests an extension of Contract Time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in Work. When requesting time, requests must be submitted with full justification and documentation. If the Contractor fails to submit justification, it waives its right to a time extension at a later date. Such justification must be based on the official Construction Schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the Scope of

Work. Any claim for delay must include the following information as support, without limitation:

16.2.3.1 The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform the activities within the stated duration.

16.2.3.2 Specific logical ties to the Contract Schedule for the proposed changes and/or delay showing the activity/activities in the Construction Schedule that are affected by the change and/or delay. In particular, Contractor must show an actual impact to the schedule, after making a good faith effort to mitigate the delay by rescheduling the work, by providing an analysis of the schedule ("Schedule Analysis"). Such Schedule Analysis shall describe in detail the cause and effect of the delay and the impact on the critical dates in the Project schedule. (A portion of any delay of seven (7) days or more must be provided.)

16.2.3.3 A recovery schedule must be submitted within twenty (20) calendar days of written notification to the District of causes of delay.

16.3 No Additional Compensation for Delays Within Contractor's Control

16.3.1 Contractor is aware that governmental agencies, including, without limitation, the Division of the State Architect, the Department of General Services, gas companies, electrical utility companies, water districts, and other agencies may have to approve Contractor-prepared drawings or approve a proposed installation. Accordingly, Contractor shall include in its bid, time for possible review of its drawings and for reasonable delays and damages that may be caused by such agencies. Thus, Contractor is not entitled to make a claim for damages or delays arising from the review of Contractor's drawings.

16.3.2 Contractor shall only be entitled to compensation for delay when all of the following conditions are met:

16.3.2.1 The District is responsible for the delay;

16.3.2.2 The delay is unreasonable under the circumstances involved;

16.3.2.3 The delay was not within the contemplation of the District and Contractor;

16.3.2.4 The delay could not have been avoided or mitigated by Contractor's reasonable diligence; and

16.3.2.5 Contractor timely complies with the claims procedure of the Contract Documents.

16.4 Float or Slack in the Schedule

Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not for the exclusive use of or benefit of either the District or the Contractor, but its use shall be determined solely by the District.

17. CHANGES IN THE WORK

17.1 No Changes Without Authorization

17.1.1 There shall be no change whatsoever in the Drawings, Specifications, or in the Work without an executed Change Order or a written Construction Change Directive authorized by the District as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District's governing board has authorized the same and the cost thereof has been approved in writing by Change Order or Construction Change Directive in advance of the changed Work being performed. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted and approved in writing in the Change Order or Construction Change Directive. Contractor shall be responsible for any costs incurred by the District for professional services and DSA fees and/or delay to the Project Schedule, if any, for DSA to review any request for changes to the DSA approved plans and specifications for the convenience of the Contractor and/or to accommodate the Contractor's means and methods. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

17.1.2 Contractor shall perform immediately all work that has been authorized by a fully executed Change Order or Construction Change Directive. Contractor shall be fully responsible for any and all delays and/or expenses caused by Contractor's failure to expeditiously perform this Work.

17.1.3 Should any Change Order result in an increase in the Contract Price or extend the Contract Time, the cost of or length of extension in that Change Order shall be agreed to, in writing, by the District in advance of the Work by Contractor, and shall be subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that Contractor proceeds with any change in Work without a Change Order

executed by the District or Construction Change Directive, Contractor waives any claim of additional compensation or time for that additional work. Under no circumstances shall Contractor be entitled to any claim of additional compensation or time not expressly requested by Contractor in a Proposed Change Order or approved by District in an executed Change Order.

17.1.4 Contractor understands, acknowledges, and agrees that the reason for District authorization is so that District may have an opportunity to analyze the Work and decide whether the District shall proceed with the Change Order or alter the Project so that a change in Work becomes unnecessary.

17.2 Architect Authority

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Price, or an extension of the Contract Time, or a change that is inconsistent with the intent of the Contract Documents. These changes shall be effected by written Change Order, Construction Change Directive, by Architect's response(s) to RFI(s), or by Architect's Supplemental Instructions ("ASI").

17.3 Change Orders

17.3.1 A Change Order is a written instrument prepared and issued by the District and/or the Architect and signed by the District (as authorized by the District's Governing Board), the Contractor, the Architect, and approved by the Project Inspector (if necessary) and DSA (if necessary), stating their agreement regarding all of the following:

17.3.1.1 A description of a change in the Work;

17.3.1.2 The amount of the adjustment in the Contract Price, if any; and

17.3.1.3 The extent of the adjustment in the Contract Time, if any.

17.4 Construction Change Directives

17.4.1 A Construction Change Directive is a written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work. The District may, as provided by law, by Construction Change Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions. The adjustment to the Contract Price or Time, if any, is subject to the provisions of this section regarding Changes in the Work. If all or a portion of the Project is being funded by funds requiring approval by the State Allocation Board ("SAB"), these revisions may be subject to compensation once approval of same is received and funded by the SAB, and funds are

released by the Office of Public School Construction ("OPSC"). Any dispute as to the adjustment in the Contract Price, if any, of the Construction Change Directive or timing of payment shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

17.4.2 The District may issue a Construction Change Directive in the absence of agreement on the terms of a Change Order.

17.5 Force Account Directives

17.5.1 When work, for which a definite price has not been agreed upon in advance, is to be paid for on a force account basis, all direct costs necessarily incurred and paid by the Contractor for labor, material, and equipment used in the performance of that Work, shall be subject to the approval of the District and compensation will be determined as set forth herein.

17.5.2 The District will issue a Force Account Directive to proceed with the Work on a force account basis, and a not-to-exceed budget will be established by the District.

17.5.3 All requirements regarding direct cost for labor, labor burden, material, equipment, and markups on direct costs for overhead and profit described in this section shall apply to Force Account Directives. However, the District will only pay for actual costs verified in the field by the District or its authorized representative(s) on a daily basis.

17.5.4 The Contractor shall be responsible for all cost related to the administration of Force Account Directive. The markup for overhead and profit for Contractor modifications shall be full compensation to the Contractor to administer Force Account Directive, and Contractor shall not be entitled to separately recover additional amounts for overhead and/or profit.

17.5.5 The Contractor shall notify the District or its authorized representative(s) at least twenty-four (24) hours prior to proceeding with any of the force account work. Furthermore, the Contractor shall notify the District when it has consumed eighty percent (80%) of the budget, and shall not exceed the budget unless specifically authorized in writing by the District. The Contractor will not be compensated for force account work in the event that the Contractor fails to timely notify the District regarding the commencement of force account work, or exceeding the force account budget.

17.5.6 The Contractor shall diligently proceed with the work, and on a daily basis, submit a daily force account report on a form supplied by the District no later than 5:00 p.m. each day. The report shall contain a detailed itemization of the daily labor, material,

and equipment used on the force account work only. The names of the individuals performing the force account work shall be included on the daily force account reports. The type and model of equipment shall be identified and listed. The District will review the information contained in the reports, and sign the reports no later than the next work day, and return a copy of the report to the Contractor for their records. The District will not sign, nor will the Contractor receive compensation for work the District cannot verify. The Contractor will provide a weekly force account summary indicating the status of each Force Account Directive in terms of percent complete of the not-to-exceed budget and the estimated percent complete of the work.

17.5.7 In the event the Contractor and the District reach a written agreement on a set cost for the work while the work is proceeding based on a Force Account Directive, the Contractor's signed daily force account reports shall be discontinued and all previously signed reports shall be invalid.

17.6 Price Request

17.6.1 Definition of Price Request

A Price Request ("PR") is a written request prepared by the Architect requesting the Contractor to submit to the District and the Architect an estimate of the effect of a proposed change in the Work on the Contract Price and the Contract Time.

17.6.2 Scope of Price Request

A Price Request shall contain adequate information, including any necessary Drawings and Specifications, to enable Contractor to provide the cost breakdowns required herein. The Contractor shall not be entitled to any additional compensation for preparing a response to a Price Request, whether ultimately accepted or not.

17.7 Proposed Change Order

17.7.1 Definition of Proposed Change Order

A Proposed Change Order ("PCO") is a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

17.7.2 Changes in Contract Price

A PCO shall include breakdowns and backup documentation pursuant to the revisions herein and sufficient, in the District's judgment, to validate any change in Contract Price. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional compensation for Change Order Work.

17.7.3 Changes in Time

A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Construction Schedule as defined in the Contract Documents. The Contractor shall justify the proposed change in time by submittal of a schedule analysis that accurately shows the impact of the change on the critical path of the Construction Schedule ("Time Impact Analysis"). If Contractor fails to request a time extension in a PCO, including the Time Impact Analysis, then the Contractor is thereafter precluded from requesting, and waives any right to request, additional time and/or claim a delay. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional time for Change Order Work. A PCO that leaves the amount of time requested blank, or states that such time

requested is "to be determined", is not permitted and shall also constitute a waiver of any right to request additional time and/or claim a delay.

17.7.4 Unknown and/or Unforeseen Conditions

If there is an Allowance, then Contractor must submit a Request for Allowance Expenditure Directive, including supporting documentation as described below, to receive authorization for the release of funds from the Allowance. If cost of the unforeseen condition(s) exceed the Allowance, Contractor must submit a PCO requesting an increase in Contract Price and/or Contract Time that is based at least partially on Contractor's assertion that Contractor has encountered unknown and/or unforeseen condition(s) on the Project, then Contractor shall base the PCO on provable information that, beyond a reasonable doubt and to the District's satisfaction, demonstrates that the unknown and/or unforeseen condition(s) were actually unknown and/or unforeseen and that the condition(s) were reasonably unknown and/or unforeseen. If not, the District shall deny the PCO as unsubstantiated, and the Contractor shall complete the Project without any increase in Contract Price and/or Contract Time based on that PCO.

17.7.5 Time to Submit Proposed Change Order

Contractor shall submit its PCO within five (5) working days of the date Contractor discovers, or reasonably should have discovered, the circumstances giving rise to the PCO, unless additional time to submit a PCO is granted in writing by the District. Time is of the essence in Contractor's submission of PCOs so that the District can promptly investigate the basis for the PCO. Accordingly, if Contractor fails to submit its PCO within this timeframe, Contractor waives, releases, and discharges any right to assert or claim any entitlement to an adjustment of the Contract Price and/or Time based on circumstances giving rise to the PCO.

17.7.6 Proposed Change Order Certification

In submitting a PCO, Contractor certifies and affirms that the cost and/or time request is submitted in good faith, that the cost and/or time request is accurate and in accordance with the provisions of the Contract Documents, and the Contractor submits the cost and/or request for extension of time recognizing the significant civil penalties and treble damages which follow from making a false claim or presenting a false claim under Government Code section 12650 et seq.

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17.8 Format for Proposed Change Order

17.8.1 The following format shall be used as applicable by the District and the Contractor (e.g. Change Orders, PCO's) to communicate proposed additions and deductions to the Contract, supported by attached documentation. Any spaces left blank will be deemed no change to cost or time.

	WORK PERFORMED OTHER THAN BY CONTRACTOR	**ADD**	**DEDUCT**
(a)	**Material** (attach suppliers' invoice or itemized quantity and unit cost plus sales tax)		
(b)	**Add Labor** (attach itemized hours and rates, fully encumbered)		
(c)	**Add Equipment** (attach suppliers' invoice)		
(d)	**Subtotal**		
(e)	**Add overhead and profit for any and all tiers of Subcontractor**, the total not to exceed ten percent (10%) of Item (d)		
(f)	**Subtotal**		
(g)	**Add Overhead and Profit for Contractor**, not to exceed five percent (5%) of Item (f)		
(h)	**Subtotal**		
(i)	**Add Bond and Insurance**, not to exceed one and a half percent (1.5%) of Item (h)		
(j)	**TOTAL**		
(k)	**Time** (zero unless indicated; "TBD" not permitted)	____ **Calendar Days**	

	WORK PERFORMED BY CONTRACTOR	**ADD**	**DEDUCT**
(a)	**Material** (attach itemized quantity and unit cost plus sales tax)		
(b)	**Add Labor** (attach itemized hours and rates, fully encumbered)		
(c)	**Add Equipment** (attach suppliers' invoice)		
(d)	**Subtotal**		
(e)	**Add Overhead and Profit for Contractor**, not to exceed fifteen percent (15%) of Item (d)		
(f)	**Subtotal**		
(g)	**Add Bond and Insurance**, not to exceed one and a half percent (1.5%) of Item (f)		
(h)	**TOTAL**		

(i)	**Time** (zero unless indicated; "TBD" not permitted)	____ **Calendar Days**

17.8.2 Labor. Contractor shall be compensated for the costs of labor actually and directly utilized in the performance of the Work. Such labor costs shall be limited to field labor for which there is a prevailing wage rate classification. Wage rates for labor shall not exceed the prevailing wage rates in the locality of the Site and shall be in the labor classification(s) necessary for the performance of the Work. Labor costs shall exclude costs incurred by the Contractor in preparing estimate(s) of the costs of the change in the Work, in the maintenance of records relating to the costs of the change in the Work, coordination and assembly of materials and information relating to the change in the Work or performance thereof, or the supervision and other overhead and general conditions costs associated with the change in the Work or performance thereof, including but not limited to the cost for the job superintendent.

17.8.3 Materials. Contractor shall be compensated for the costs of materials necessarily and actually used or consumed in connection with the performance of the change in the Work. Costs of materials may include reasonable costs of transportation from a source closest to the Site of the Work and delivery to the Site. If discounts by material suppliers are available for materials necessarily used in the performance of the change in the Work, they shall be credited to the District. If materials necessarily used in the performance of the change in the Work are obtained from a supplier or source owned in whole or in part by the Contractor, compensation therefor shall not exceed the current wholesale price for such materials. If, in the reasonable opinion of the District, the costs asserted by the Contractor for materials in connection with any change in the Work are excessive, or if the Contractor fails to provide satisfactory evidence of the actual costs of such materials from its supplier or vendor of the same, the costs of such materials and the District's obligation to pay for the same shall be limited to the then lowest wholesale price at which similar materials are available in the quantities required to perform the change in the Work. The District may elect to furnish materials for the change in the Work, in which event the Contractor shall not be compensated for the costs of furnishing such materials or any mark-up thereon.

17.8.4 Equipment. As a precondition to the District's duty to pay for Equipment rental or loading and transportation, Contractor shall provide satisfactory evidence of the actual costs of Equipment from the supplier, vendor or rental agency of same. Contractor shall be compensated for the actual cost of the necessary and direct use of Equipment in the performance of the change in the Work. Use of such Equipment in the performance of the change in the Work shall be compensated in increments of fifteen (15) minutes. Rental time for Equipment moved by its own power shall include time required to move such Equipment to the site of the Work from the nearest available

rental source of the same. If Equipment is not moved to the Site by its own power, Contractor will be compensated for the loading and transportation costs in lieu of rental time. The foregoing notwithstanding, neither moving time or loading and transportation time shall be allowed if the Equipment is used for performance of any portion of the Work other than the change in the Work. Unless prior approval in writing is obtained by the Contractor from the Architect, the Project Inspector and the District, no costs or compensation shall be allowed for time while Construction Equipment is inoperative, idle or on standby, for any reason. Contractor shall not be entitled to an allowance or any other compensation for Equipment or tools used in the performance of change in the Work where such Equipment or tools have a replacement value of $500.00 or less. Equipment costs claimed by the Contractor in connection with the performance of any Work shall not exceed rental rates established by distributors or construction equipment rental agencies in the locality of the Site; any costs asserted which exceed such rental rates shall not be allowed or paid. Unless otherwise specifically approved in writing by the Architect, the Project Inspector and the District, the allowable rate for the use of Equipment in connection with the Work shall constitute full compensation to the Contractor for the cost of rental, fuel, power, oil, lubrication, supplies, necessary attachments, repairs or maintenance of any kind, depreciation, storage, insurance, labor (exclusive of labor costs of the Equipment operator), and any and all other costs incurred by the Contractor incidental to the use of such Equipment.

17.8.5 Overhead and Profit. The phrase "Overhead and Profit" shall include field and office supervisors and assistants, watchperson, use of small tools, consumable, insurance other than construction bonds and insurance required herein, and general field and home office expenses.

17.9 Change Order Certification

17.9.1 All Change Orders and PCOs must include the following certification by the Contractor:

17.9.1.1 The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the governing board of the District.

17.9.1.2 It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

17.10 Determination of Change Order Cost

17.10.1 The amount of the increase or decrease in the Contract Price from a Change Order, if any, shall be determined in one or more of the following ways as applicable to a specific situation and at the District's discretion:

17.10.1.1 District acceptance of a PCO;

17.10.1.2 By unit prices contained in Contractor's original bid;

17.10.1.3 By agreement between District and Contractor.

17.11 Deductive Change Orders

All deductive Change Order(s) must be prepared pursuant to the provisions herein. Where a portion of the Work is deleted from the Contract, the reasonable value of the deducted work less the value of work performed shall be considered the appropriate deduction. The value submitted on the Schedule of Values shall be used to calculate the credit amount unless the bid documentation is being held in escrow as part of the Contract Documents. Unit Prices, if any, may be used in District's discretion in calculating reasonable value. If Contractor offers a proposed amount for a deductive Change Order(s), Contractor shall include a minimum of five percent (5%) total profit and overhead to be deducted with the amount of the work of the Change Order(s). If Subcontractor work is involved, Subcontractors shall also include a minimum of five percent (5%) profit and overhead to be deducted with the amount of its deducted work. Any deviation from this provision shall not be allowed.

17.12 Addition or Deletion of Alternate Bid Item(s)

If the Bid Form and Proposal includes proposal(s) for Alternate Bid Item(s), during Contractor's performance of the Work, the District may elect to add or delete any such Alternate Bid Item(s) if not included in the Contract at the time of award. If the District elects to add or delete Alternate Bid Item(s) after Contract award, the cost or credit for such Alternate Bid Item(s) shall be as set forth in the Bid Form and Proposal unless the parties agree to a different price and the Contract Time shall be adjusted by the number of days allocated in the Contract Documents. If days are not allocated in the Contract Documents, the Contract Time shall be equitably adjusted.

17.13 Discounts, Rebates, and Refunds

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omission in the Work as provided herein.

17.14 Accounting Records

With respect to portions of the Work performed by Change Orders and Construction Change Directives, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, including, without limitation, Job Cost Reports as provided in these General Conditions, which shall be available to the District on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents. Such records shall include without limitation hourly records for Labor and Equipment and itemized records of materials and Equipment used that day in connection with the performance of any Work. All records maintained hereunder shall be subject to inspection, review and/or reproduction by the District, the Architect or the Project Inspector upon request. In the event that the Contractor fails or refuses, for any reason, to maintain or make available for inspection, review and/or reproduction such records, the District's reasonable good faith determination of the extent of adjustment to the Contract Price shall be final, conclusive, dispositive and binding upon Contractor.

17.15 Notice Required

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to the provisions herein, including the Article on Claims and Disputes. No claim shall be considered unless made in accordance with this subparagraph. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a Change Order.

17.16 Applicability to Subcontractors

Any requirements under this Article shall be equally applicable to Change Orders or Construction Change Directives issued to Subcontractors by the Contractor to the extent as required by the Contract Documents.

17.17 Alteration to Change Order Language

Contractor shall not alter Change Orders or reserve time in Change Orders. Change Orders altered in violation of this provision, if in conflict with the terms set forth herein, shall be construed in accordance with the terms set forth herein. Contractor shall execute finalized Change Orders and proceed under the provisions herein with proper notice.

17.18 Failure of Contractor to Execute Change Order

Contractor shall be in default of the Contract if Contractor fails to execute a Change Order when the Contractor agrees with the addition and/or deletion of the Work in that Change Order.

18. REQUEST FOR INFORMATION

18.1 Any Request for Information shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. The Contractor shall make suggestions and interpretations of the issue raised by each Request for Information. A Request for Information cannot modify the Contract Price, Contract Time, or the Contract Documents. Upon request by the District, Contractor shall provide an electronic copy of the Request for Information in addition to the hard copy.

18.2 The Contractor shall be responsible for any costs incurred for professional services that District may deduct from any amounts owing to the Contractor, if a Request for Information requests an interpretation or decision of a matter where the information sought is equally available to the party making the request. District, at its sole discretion, shall deduct from and/or invoice Contractor for all the professional services arising herein.

19. PAYMENTS

19.1 Contract Price

The Contract Price is stated in the Agreement and, including authorized adjustments, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents.

19.2 Applications for Progress Payments

19.2.1 Procedure for Applications for Progress Payments

19.2.1.1 Application for Progress Payment

19.2.1.1.1 Not before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the District and the Architect an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or each portion thereof unless waived by the District in writing:

19.2.1.1.1.1 The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;

19.2.1.1.1.2 The amount being requested under the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;

19.2.1.1.1.3 The balance that will be due to each of such entities after said payment is made;

19.2.1.1.1.4 A certification that the As-Built Drawings and annotated Specifications are current;

19.2.1.1.1.5 Itemized breakdown of work done for the purpose of requesting partial payment;

19.2.1.1.1.6 An updated and acceptable construction schedule in conformance with the provisions herein;

19.2.1.1.1.7 The additions to and subtractions from the Contract Price and Contract Time;

19.2.1.1.1.8 A total of the retentions held;

19.2.1.1.1.9 Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;

19.2.1.1.1.10 The percentage of completion of the Contractor's Work by line item;

19.2.1.1.1.11 Schedule of Values updated from the preceding Application for Payment;

19.2.1.1.1.12 A duly completed and executed conditional waiver and release upon progress payment compliant with Civil Code section 8132 from the Contractor and each subcontractor of any tier and supplier to be paid from the current progress payment;

19.2.1.1.1.13 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134 from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payment(s); and

19.2.1.1.1.14 A certification by the Contractor of the following:

The Contractor warrants title to all Work performed as of the date of this payment application has been completed in accordance with the Contract Documents for the Project. The Contractor further warrants that all amounts have been paid for work which previous Certificates for Payment were issued and payments received and all Work performed as of the date of this payment application is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, workers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work, except those of which the District has been informed. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

19.2.1.1.1.15 The Contractor shall be subject to the False Claims Act set forth in Government Code section 12650 et seq. for information provided with any Application for Progress Payment.

19.2.1.1.1.16 All remaining certified payroll records ("CPR(s)") for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work for the period of the Application for Payment. As indicated herein, the District shall not make any payment to Contractor until:

19.2.1.1.1.16.1 Contractor and/or its Subcontractor(s) provide electronic CPRs weekly for all weeks any journeyman, apprentice, worker or other employee was employed in connection with the Work directly to the DIR, or within ten (10) days of any request by the District or the DIR, and

19.2.1.1.1.16.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs in a timely manner may directly delay the Contractor's payment.

19.2.1.1.2 Applications received after June 20th will not be paid until the second week of July and applications received after December 12th will not be paid until the first week of January.

19.2.2 Prerequisites for Progress Payments

19.2.2.1 **First Payment Request:** The following items, if applicable, must be completed before the District will accept and/or process the Contractor's first payment request:

19.2.2.1.1 Installation of the Project sign;

19.2.2.1.2 Installation of field office;

19.2.2.1.3 Installation of temporary facilities and fencing;

19.2.2.1.4 Schedule of Values;

19.2.2.1.5 Contractor's Construction Schedule;

19.2.2.1.6 Schedule of unit prices, if applicable;

19.2.2.1.7 Submittal Schedule;

19.2.2.1.8 Receipt by Architect of all submittals due as of the date of the payment application;

19.2.2.1.9 Copies of necessary permits;

19.2.2.1.10 Copies of authorizations and licenses from governing authorities;

19.2.2.1.11 Initial progress report;

19.2.2.1.12 Surveyor qualifications;

19.2.2.1.13 Written acceptance of District's survey of rough grading, if applicable;

19.2.2.1.14 List of all Subcontractors, with names, license numbers, telephone numbers, and Scope of Work;

19.2.2.1.15 All bonds and insurance endorsements; and

19.2.2.1.16 Resumes of Contractor's project manager, and if applicable, job site secretary, record documents recorder, and job site superintendent.

19.2.2.2 Second Payment Request: The District will not process the second payment request until and unless all submittals and Shop Drawings have been accepted for review by the Architect.

19.2.2.3 No Waiver of Criteria: Any payments made to Contractor where criteria set forth herein have not been met shall not constitute a waiver of said criteria by District. Instead, such payment shall be construed as a good faith effort by District to resolve differences so Contractor may pay its Subcontractors and suppliers. Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

19.3 Progress Payments

19.3.1 District's Approval of Application for Payment

19.3.1.1 Upon receipt of an Application for Payment, The District shall act in accordance with both of the following:

19.3.1.1.1 Each Application for Payment shall be reviewed by the District as soon as practicable after receipt for the purpose of determining that the Application for Payment is a proper Application for Payment.

19.3.1.1.2 Any Application for Payment determined not to be a proper Application for Payment suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days, after receipt. An Application for Payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the Application for Payment is not proper. The number of days available to the District to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the District exceeds this seven-day return requirement.

19.3.1.1.3 An Application for Payment shall be considered properly executed if funds are available for payment of the Application for Payment, and payment is not delayed due to an audit inquiry by the financial officer of the District.

19.3.1.2 The District's review of the Contractor's Application for Payment will be based on the District's and the Architect's observations at the Site and the data

comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the District's and the Architect's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to:

19.3.1.2.1 Observation of the Work for general conformance with the Contract Documents,

19.3.1.2.2 Results of subsequent tests and inspections,

19.3.1.2.3 Minor deviations from the Contract Documents correctable prior to completion, and

19.3.1.2.4 Specific qualifications expressed by the Architect.

19.3.1.3 District's approval of the certified Application for Payment shall be based on Contractor complying with all requirements for a fully complete and valid certified Application for Payment.

19.3.2 Payments to Contractor

19.3.2.1 Within thirty (30) days after approval of the Application for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as verified by Architect and Inspector and certified by Contractor) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The value of the Work completed shall be Contractor's best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any Surety upon any bond, from damages arising from such Work, or from the District's right to enforce each and every provision of this Contract, and the District shall have the right subsequently to correct any error made in any estimate for payment.

19.3.2.2 The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for Work performed, so long as any lawful or proper direction given by the District concerning the Work, or any portion thereof, remains incomplete.

19.3.2.3 If the District fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted Application for Payment from the Contractor, the District shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

19.3.3 No Waiver

No payment by District hereunder shall be interpreted so as to imply that District has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the District may enforce each and every provision of this Contract. The District may correct or require correction of any error subsequent to any payment.

19.4 Decisions to Withhold Payment

19.4.1 Reasons to Withhold Payment

The District may withhold payment in whole, or in part, to the extent reasonably necessary to protect the District if, in the District's opinion, the representations to the District required herein cannot be made. The District may withhold payment, in whole, or in part, to such extent as may be necessary to protect the District from loss because of, but not limited to any of the following:

19.4.1.1 Defective Work not remedied within **FORTY-EIGHT (48)** hours of written notice to Contractor.

19.4.1.2 Stop Payment Notices or other liens served upon the District as a result of the Contract. Contractor agrees that the District may withhold up to 125% of the amount claimed in the Stop Payment Notice to answer the claim and to provide for the District's reasonable cost of any litigation pursuant to the stop payment notice.

19.4.1.3 Liquidated damages assessed against the Contractor.

19.4.1.4 The cost of completion of the Contract if there exists a reasonable doubt that the Work can be completed for the unpaid balance of the Contract Price or by the completion date.

19.4.1.5 Damage to the District or other contractor(s).

19.4.1.6 Unsatisfactory prosecution of the Work by the Contractor.

19.4.1.7 Failure to store and properly secure materials.

19.4.1.8 Failure of the Contractor to submit, on a timely basis, proper, sufficient, and acceptable documentation required by the Contract Documents, including, without limitation, a Construction Schedule, Schedule of Submittals, Schedule of Values, Monthly Progress Schedules, Shop Drawings, Product Data and samples, Proposed product lists, executed Change Orders, and/or verified reports.

19.4.1.9 Failure of the Contractor to maintain As-Built Drawings.

19.4.1.10 Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment.

19.4.1.11 Unauthorized deviations from the Contract Documents.

19.4.1.12 Failure of the Contractor to prosecute the Work in a timely manner in compliance with the Construction Schedule, established progress schedules, and/or completion dates.

19.4.1.13 Failure to provide acceptable electronic certified payroll records, as required by the Labor Code, by these Contract Documents, or by written request; for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or by each Subcontractor in connection with the Work for the period of the Application for Payment or if payroll records are delinquent or inadequate.

19.4.1.14 Failure to properly pay prevailing wages as required in Labor Code section 1720 et seq., failure to comply with any other Labor Code requirements, and/or failure to comply with labor compliance monitoring and enforcement by the DIR.

19.4.1.15 Allowing an unregistered subcontractor, as described in Labor Code section 1725.5, to engage in the performance of any work under this Contract.

19.4.1.16 Failure to comply with any applicable federal statutes and regulations regarding minimum wages, withholding, payrolls and basic records, apprentice and trainee employment requirements, equal employment opportunity requirements, Copeland Act requirements, Davis-Bacon Act and related requirements, Contract Work Hours and Safety Standards Act requirements, if applicable.

19.4.1.17 Failure to properly maintain or clean up the Site.

19.4.1.18 Failure to timely indemnify, defend, or hold harmless the District.

19.4.1.19 Any payments due to the District, including but not limited to payments for failed tests, utilities changes, or permits.

19.4.1.20 Failure to pay Subcontractor(s) or supplier(s) as required by law and by the Contract Documents.

19.4.1.21 Failure to pay any royalty, license or similar fees.

19.4.1.22 Contractor is otherwise in breach, default, or in substantial violation of any provision of this Contract.

19.4.1.23 Failure to perform any implementation and/or monitoring required by any SWPPP for the Project and/or the imposition of any penalties or fines therefore whether imposed on the District or Contractor.

19.4.2 Reallocation of Withheld Amounts

19.4.2.1 District may, in its discretion, apply any withheld amount to pay outstanding claims or obligations as defined herein. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then that amount shall be considered a payment made under Contract by District to Contractor and District shall not be liable to Contractor for any payment made in good faith. These payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of funds disbursed on behalf of Contractor.

19.4.2.2 If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents or fails to perform any provision thereof, District may, after **FORTY-EIGHT (48)** hours' written notice to the Contractor and, without prejudice to any other remedy, make good such deficiencies. 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 that is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract Price (of at least one hundred fifty percent (150%) of the estimated reasonable value of the nonconforming Work) shall be made therefor.

19.4.3 Payment After Cure

When Contractor removes the grounds for declining approval, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

19.5 Subcontractor Payments

19.5.1 Payments to Subcontractors

No later than seven (7) days after receipt, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Sub-subcontractors in a similar manner.

19.5.2 No Obligation of District for Subcontractor Payment

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

19.5.3 Joint Checks

District shall have the right in its sole discretion, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and/or material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, or a material or equipment supplier, any obligation from the District to such Subcontractor or a material or equipment supplier, or rights in such Subcontractor or a material or equipment supplier against the District.

20. COMPLETION OF THE WORK

20.1 Completion

20.1.1 District will accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District.

20.1.2 The Work may only be accepted as complete by action of the governing board of the District.

20.1.3 District, at its sole option, may accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District, except for minor corrective items, as distinguished from incomplete items. If Contractor fails to complete all minor corrective items within fifteen (15) days after the date of the District's acceptance of completion, District shall withhold from the final payment one hundred fifty percent (150%) of an estimate of the amount sufficient to complete the corrective items, as determined by District, until the item(s) are completed.

20.1.4 At the end of the 15-day period, if there are any items remaining to be corrected, District may elect to proceed as provided herein related to adjustments to Contract Price, and/or District's right to perform the Work of the Contractor.

20.2 Close-Out/Certification Procedures

20.2.1 Punch List

The Contractor shall notify the Architect when Contractor considers the Work complete. Upon notification, Architect will prepare a list of minor items to be completed or corrected ("Punch List"). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

20.2.2 Close-Out/Certification Requirements

20.2.2.1 Utility Connections

Buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

20.2.2.2 Record Drawings and Record Specifications

20.2.2.2.1 Contractor shall provide exact Record Drawings of the Work ("As-Builts") and Record Specifications upon completion of the Project and as a condition precedent to approval of final payment.

20.2.2.2.2 Contractor shall obtain the Inspector's approval of the corrected prints and employ a competent draftsman to transfer the Record Drawings information to the most current version of AutoCAD that is, at that time, currently utilized for plan check submission by either the District, the Architect, OPSC, and/or DSA, and print a complete set of transparent sepias. When completed, Contractor shall deliver corrected sepias and diskette/CD/other data storage device acceptable to District with AutoCAD file to the District.

20.2.2.2.3 Contractor is liable and responsible for any and all inaccuracies in the Record Drawings and Record Specifications, even if inaccuracies become evident at a future date.

20.2.2.3 Maintenance Manuals: Contractor shall prepare all operation and maintenance manuals and date as indicated in the Specifications.

20.2.2.4 Source Programming: Contractor shall provide all source programming for all items in the Project.

20.2.2.5 Verified Reports: Contractor shall completely and accurately fill out and file forms DSA 6-C or DSA 152 (or current form), as appropriate. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

20.3 Final Inspection

20.3.1 Contractor shall comply with Punch List procedures as provided herein, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of the Punch List without District's prior written approval. Upon receipt of Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and District acceptance, Architect and Project Inspector will inspect the Work and shall submit to Contractor and District a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

20.3.2 Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the District and Architect, who shall again inspect such Work. If the Architect finds the Work complete and acceptable under the Contract Documents, the Architect will notify Contractor, who shall then jointly submit to the Architect and the District its final Application for Payment.

20.3.3 Final Inspection Requirements

20.3.3.1 Before calling for final inspection, Contractor shall determine that the following have been performed:

20.3.3.1.1 The Work has been completed.

20.3.3.1.2 All life safety items are completed and in working order.

20.3.3.1.3 Mechanical and electrical Work are complete and tested, fixtures are in place, connected, and ready for tryout.

20.3.3.1.4 Electrical circuits scheduled in panels and disconnect switches labeled.

20.3.3.1.5 Painting and special finishes complete.

20.3.3.1.6 Doors complete with hardware, cleaned of protective film, relieved of sticking or binding, and in working order.

20.3.3.1.7 Tops and bottoms of doors sealed.

20.3.3.1.8 Floors waxed and polished as specified.

20.3.3.1.9 Broken glass replaced and glass cleaned.

20.3.3.1.10 Grounds cleared of Contractor's equipment, raked clean of debris, and trash removed from Site.

20.3.3.1.11 Work cleaned, free of stains, scratches, and other foreign matter, and damaged and broken material replaced.

20.3.3.1.12 Finished and decorative work shall have marks, dirt, and superfluous labels removed.

20.3.3.1.13 Final cleanup, as provided herein.

20.4 Costs of Multiple Inspections

More than two (2) requests of the District to make a final inspection shall be considered an additional service of District, Architect, Construction Manager, and/or Project Inspector, and all subsequent costs will be invoiced to Contractor and if funds are available, withheld from remaining payments.

20.5 Partial Occupancy or Use Prior to Completion

20.5.1 District's Rights to Occupancy

The District may occupy or use any completed or partially completed portion of the Work at any stage, and such occupancy shall not constitute the District's Final Acceptance of any part of the Work. Neither the District's Final Acceptance, the making of Final Payment, any provision in Contract Documents, nor the use or occupancy of the Work, in whole or in part, by District shall constitute acceptance of Work not in accordance with the Contract Documents nor relieve the Contractor or the Contractor's Performance Bond Surety from liability with respect to any warranties or responsibility for faulty or defective Work or materials, equipment and workmanship incorporated therein. In the event that the District occupies or uses any completed or partially completed portion of the Work, the Contractor shall remain responsible for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents unless the Contractor requests in writing, and the District agrees, to otherwise divide those responsibilities. Any dispute as to responsibilities shall be resolved pursuant to the Claims and Disputes provisions herein, with the added provision that during the dispute process, the District shall have the right to occupy or use any portion of the Work that it needs or desires to use.

20.5.2 Inspection Prior to Occupancy or Use

Immediately prior to partial occupancy or use, the District, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

20.5.3 No Waiver

Unless otherwise agreed upon, partial or entire occupancy or use of a portion or portions of the Work shall not constitute beneficial occupancy or District's acceptance of the Work not complying with the requirements of the Contract Documents.

21. FINAL PAYMENT AND RETENTION

21.1 Final Payment

Upon receipt and approval of a valid and final Application for Payment, the Architect will issue a final Certificate of Payment. The District shall thereupon jointly inspect the Work and either accept the Work as complete or notify the Architect and the Contractor in writing of reasons why the Work is not complete. Upon District's acceptance of the Work of the Contractor as fully complete by the Governing Board of the District (that, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and the Contractor shall, upon receipt of final payment from the District, pay the amount due Subcontractors.

21.2 Prerequisites for Final Payment

The following conditions must be fulfilled prior to Final Payment:

21.2.1 A full release of all Stop Payment Notices served in connection with the Work shall be submitted by Contractor.

21.2.2 A duly completed and executed conditional waiver and release upon final payment compliant with Civil Code section 8136, from the Contractor and each subcontractor of any tier and supplier to be paid from the final payment.

21.2.3 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134, from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payments.

21.2.4 A duly completed and executed Document "AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS" from the Contractor.

21.2.5 The Contractor shall have made all corrections to the Work that are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of District required under the Contract Documents.

21.2.6 Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.

21.2.7 Contractor must have completed all requirements set forth under "Close-Out/Certification Procedures," including, without limitation, submission of an approved set of complete Record Drawings.

21.2.8 Architect shall have issued its written approval that final payment can be made.

21.2.9 The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents, which must be approved by the District.

21.2.10 The Contractor shall have completed final clean-up as provided herein.

21.3 Retention

21.3.1 The retention, less any amounts disputed by the District or that the District has the right to withhold pursuant to provisions herein, shall be paid:

21.3.1.1 After approval by the Architect of the Application and Certificate of Payment,

21.3.1.2 After the satisfaction of the conditions set forth herein, and

21.3.1.3 After forty-five (45) days after the recording of the Notice of Completion by District.

21.3.2 No interest shall be paid on any retention, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the District and the Contractor pursuant to Public Contract Code section 22300.

21.4 Substitution of Securities

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.

22. UNCOVERING OF WORK

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the District, the Project Inspector, or the Architect, be uncovered for the Project Inspector's or the Architect's observation and be corrected, replaced, and/or recovered at the Contractor's expense without change in the Contract Price or Contract Time.

23. NONCONFORMING WORK AND CORRECTION OF WORK

23.1 Nonconforming Work

23.1.1 Contractor shall promptly remove from Premises all Work identified by District as failing to conform to the Contract Documents whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract Documents without additional expense to the District and shall bear the expense of making good all work of other contractors destroyed or damaged by any removal or replacement pursuant hereto and/or any delays to the District or other Contractors caused thereby.

23.1.2 If Contractor does not remove Work that District has identified as failing to conform to the Contract Documents within a reasonable time, not to exceed **FORTY-EIGHT (48)** hours, District may remove it and may store any material at Contractor's expense. If Contractor does not pay expense(s) of that removal within ten (10) days' time thereafter, District may, upon ten (10) days' written notice, sell any material at auction or at private sale and shall deduct all costs and expenses incurred by the District and/or District may withhold those amounts from payment(s) to Contractor.

23.2 Correction of Work

23.2.1 Correction of Rejected Work

Pursuant to the notice provisions herein, the Contractor shall immediately correct the Work rejected by the District, the Architect, or the Project Inspector as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the Architect's services and expenses made necessary thereby.

23.2.2 One-Year Warranty Corrections

If, within one (1) year after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established hereunder, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the District to do so. This period of one (1) year shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation hereunder shall survive District's acceptance of the Work under the Contract and termination of the Contract. The District shall give such notice promptly after discovery of the condition.

23.3 District's Right to Perform Work

23.3.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this contract, the District, after **FORTY-EIGHT (48)** hours written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

23.3.2 If it is found at any time, before or after completion of the Work, that Contractor has varied from the Drawings and/or Specifications, including, but not limited to, variation in material, quality, form, or finish, or in the amount or value of the materials and labor used, District may require at its option:

23.3.2.1 That all such improper Work be removed, remade or replaced, and all work disturbed by these changes be made good by Contractor at no additional cost to the District;

23.3.2.2 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; or

23.3.2.3 That the District exercise any other remedy it may have at law or under the Contract Documents, including but not limited to the District hiring its own forces or another contractor to replace the Contractor's nonconforming Work, in which case the District shall either issue a deductive Change Order, a Construction Change Directive, or invoice the Contractor for the cost of that work. Contractor shall pay any invoices within thirty (30) days of receipt of same or District may withhold those amounts from payment(s) to Contractor.

24. TERMINATION AND SUSPENSION

24.1 District's Right to Terminate Contractor for Cause

24.1.1 Grounds for Termination: The District, in its sole discretion, may terminate the Contract and/or terminate the Contractor's right to perform the work of the Contract based upon any of the following:

24.1.1.1 Contractor refuses or fails to execute the Work or any separable part thereof with sufficient diligence as will ensure its completion within the time specified or any extension thereof, or

24.1.1.2 Contractor fails to complete said Work within the time specified or any extension thereof, or

24.1.1.3 Contractor persistently fails or refused to perform Work or provide material of sufficient quality as to be in compliance with Contract Documents; or

24.1.1.4 Contractor persistently or repeatedly refuses fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

24.1.1.5 Contractor fails to make prompt payment to Subcontractors, or for material, or for labor; or

24.1.1.6 Contractor persistently disregards laws, or ordinances, or instructions of District; or

24.1.1.7 Contractor fails to supply labor, including that of Subcontractors, that is sufficient to prosecute the Work or that can work in harmony with all other elements of labor employed or to be employed on the Work; or

24.1.1.8 Contractor or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Contract, including but not limited to a lapse in licensing or registration.

24.1.2 Notification of Termination

24.1.2.1 Upon the occurrence at District's sole determination of any of the above conditions, District may, without prejudice to any other right or remedy, serve written notice upon Contractor and its Surety of District's termination of this Contract and/or the Contractor's right to perform the work of the Contract. This notice will contain the reasons for termination. Unless, within three (3) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to District for the correction of the condition(s) and/or violation(s) be made, this Contract shall cease and terminate. Upon Termination, Contractor shall not be entitled to receive any further payment until the entire Work is finished.

24.1.2.2 Upon Termination, District may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Contract only if Surety:

24.1.2.2.1 Within three (3) days after service upon it of the notice of tender, gives District written notice of Surety's intention to take over and perform this Contract; and

24.1.2.2.2 Commences performance of this Contract within three (3) days from date of serving of its notice to District.

24.1.2.3 Surety shall not utilize Contractor in completing the Project if the District notifies Surety of the District's objection to Contractor's further participation in the completion of the Project. Surety expressly agrees that any contractor which Surety proposes to fulfill Surety's obligations is subject to District's approval. District's approval shall not be unreasonably withheld, conditioned or delayed.

24.1.2.4 If Surety fails to notify District or begin performance as indicated herein, District may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of Contractor and/or its Surety. Contractor and/or its Surety shall be liable to District for any excess cost or other damages the District incurs thereby. Time is of the essence in this Contract. If the District takes over the Work as herein provided, District may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plan, and other property belonging to Contractor as may be on the Site of the Work, in bonded storage, or previously paid for.

24.1.3 Effect of Termination

24.1.3.1 Contractor shall, only if ordered to do so by the District, immediately remove from the Site all or any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The District retains the right, but not the obligation, to keep and use any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The Contractor and its Surety shall be liable upon the performance bond for all damages caused to the District by reason of the Contractor's failure to complete the Contract.

24.1.3.2 In the event that the District shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the District shall not be liable nor account to the Contractor in any way for the time within which, or the manner in which, the Work is performed by the District or for any changes the District may make in the Work or for the money expended by the District in satisfying claims and/or suits and/or other obligations in connection with the Work.

24.1.3.3 In the event that the Contract is terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by the Contractor or any impact or impairment of Contractor's bonding capacity.

24.1.3.4 If the expense to the District to finish the Work exceeds the unpaid Contract Price, Contractor and Surety shall pay difference to District within twenty-one (21) days of District's request.

24.1.3.5 The District shall have the right (but shall have no obligation) to assume and/or assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the Contractor under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the District, no Subcontractor shall have any claim against the District or third party for Work performed by Subcontractor or other matters arising prior to termination of the Contract. The District or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the District so elect, the Contractor shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the District may require, for the purpose of fully vesting in the District the rights and benefits of its Subcontractor under Subcontracts or other obligations or commitments. All payments due the Contractor hereunder shall be

subject to a right of offset by the District for expenses and damages suffered by the District as a result of any default, acts, or omissions of the Contractor. Contractor must include this assignment provision in all of its contracts with its Subcontractors.

24.1.3.6 The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to District.

24.1.4 Emergency Termination of Public Contracts Act of 1949

24.1.4.1 This Contract is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

24.1.4.1.1 Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

24.1.4.1.2 Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.

24.1.4.2 Compensation to the Contractor shall be determined at the sole discretion of District on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the District's discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price shall control. The District, at its sole discretion, may adopt the Contract Price as the reasonable value of the work done or any portion thereof.

24.2 Termination of Contractor for Convenience

24.2.1 District in its sole discretion may terminate the Contract upon three (3) days' written notice to the Contractor. Under a termination for convenience, the District retains the right to all the options available to the District if there is a termination for

cause. In case of a termination for convenience, the Contractor shall have no claims against the District except:

24.2.1.1 The actual cost for labor, materials, and services performed that is unpaid and adequately documented through timesheets, invoices, receipts, or otherwise, and

24.2.1.2 Five percent (5%) of the total cost of work performed as of the date of termination, or five percent (5%) of the value of the Work yet to be performed, whichever is less. This five percent (5%) amount shall be full compensation for all Contractor's and Subcontractor(s)' mobilization and/or demobilization costs and any anticipated loss profits resulting from termination of the Contractor for convenience.

24.3 Suspension of Work

24.3.1 District in its sole discretion may suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine upon three (3) days written notice to the Contractor.

24.3.1.1 An adjustment may be made for changes in the cost of performance of the Work caused by any such suspension, delay or interruption. No adjustment shall be made to the extent:

24.3.1.1.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible; or

24.3.1.1.2 That an equitable adjustment is made or denied under another provision of the Contract; or

24.3.1.1.3 That the suspension of Work was the direct or indirect result of Contractor's failure to perform any of its obligations hereunder.

24.3.1.2 Any adjustments in cost of performance may have a fixed or percentage fee as provided in the section on Format for Proposed Change Order herein. This amount shall be full compensation for all Contractor's and its Subcontractor(s)' changes in the cost of performance of the Contract caused by any such suspension, delay or interruption.

25. CLAIMS PROCESS

25.1 Performance during Claim Process

Contractor and its subcontractors shall continue to perform its Work under the Contract and shall not cause a delay of the Work during any dispute, claim, negotiation, mediation, or arbitration proceeding, except by written agreement by the District.

25.2 Definition of Claim

25.2.1 Pursuant to Public Contract Code section 9204, the term "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

25.2.1.1 A time extension, including without limitation, for relief of damages or penalties for delay assessed by the District under the Contract;

25.2.1.2 Payment by the District of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or to which Contractor is not otherwise entitled to; or

25.2.1.3 An amount of payment disputed by the District.

25.3 Claims Presentation

25.3.1 If Contractor intends to apply for an increase in the Contract Price or Contract Time for any reason including, without limitation, the acts of District or its agents, Contractor shall, within thirty (30) days after the event giving rise to the Claim, give notice of the Claim in writing, including an itemized statement of the details and amounts of its Claim for any increase in the Contract Price of Contract Time, including a Schedule Analysis and any and all other documentation substantiating Contractor's claimed damages. Otherwise, Contractor shall have waived and relinquished its dispute against the District and Contractor's claims for compensation or an extension of time shall be forfeited and invalidated. Likewise, failure to timely submit a claim and the requisite supporting documentation shall constitute a waiver of such claim.

25.3.2 The Claim shall identify:

25.3.2.1 The issues, events, conditions, circumstances and/or causes giving rise to the dispute, and shall show, in detail, the cause and effect of same;

25.3.2.2 The pertinent dates and/or durations and actual and/or anticipated effects on the Contract Price, Contract Schedule milestones and/or Contract Time adjustments;

25.3.2.3 The line-item costs for labor, material, and/or equipment, if applicable; or

25.3.2.4 A request by Contractor, if any, to waive the claims procedure under Public Contract Code section 9204 and proceed directly to the commencement of a civil action or binding arbitration.

25.3.3 The Claim shall include the following certification by the Contractor:

25.3.3.1 The undersigned Contractor certifies under penalty of perjury that the attached dispute is made in good faith; that the supporting data is accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the adjustment for which Contractor believes the District is liable; and that I am duly authorized to certify the dispute on behalf of the Contractor.

25.3.3.2 Furthermore, Contractor understands that the value of the attached dispute expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from the Work performed on the Project, additional time required on the Project and/or resulting from delay to the Project. Contractor may not separately recover for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

25.4 Claim Resolution pursuant to Public Contract Code section 9204

25.4.1 STEP 1:

25.4.1.1 Upon receipt of a Claim by registered or certified mail, return receipt requested, including the documents necessary to substantiate it, the District shall conduct a reasonable review of the Claim and, within a period **not to exceed 45 days**, shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and Contractor may, **by mutual agreement, extend the time period** to provide a written statement. If the District needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the Claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of Claim sent by registered mail or certified mail, return receipt requested, the District shall have **up to three (3) days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension**, expires to provide Contractor a written statement identifying the disputed portion and the undisputed portion.

25.4.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.4.1.2 Upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable. In this instance, District and Contractor must comply with the sections below regarding Public Contract Code section 20104 et seq. and Government Code Claim Act Claims.

25.4.1.3 If the District fails to issue a written statement, or to otherwise meet the time requirements of this section, this shall result in the Claim being deemed rejected in its entirety. A Claim that is denied by reason of the District's failure to have responded to a Claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the Claim or the responsibility or qualifications of Contractor.

25.4.2 STEP 2:

25.4.2.1 If Contractor disputes the District's written response, or if the District fails to respond to a Claim within the time prescribed, Contractor may demand in writing

an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute. Within 10 business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, the District shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed.

25.4.2.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.4.3 STEP 3:

25.4.3.1 Any disputed portion of the Claim, as identified by Contractor in writing, shall be submitted to nonbinding mediation, with the District and Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be subject to applicable procedures outside this section.

25.4.3.1.1 For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

25.4.3.2 Unless otherwise agreed to by the District and Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code section 20104.4 to mediate after litigation has been commenced.

25.4.4 STEP 4:

25.4.4.1 If mediation under this section does not resolve the parties' dispute, the District may, but does not require arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program.

25.5 Subcontractor Pass-Through Claims

25.5.1 If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a District because privity of contract does not exist, the contractor may present to the District a Claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that Contractor present a Claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the Claim be presented to the District shall furnish reasonable documentation to support the Claim.

25.5.2 Within 45 days of receipt of this written request from a subcontractor, Contractor shall notify the subcontractor in writing as to whether the Contractor presented the Claim to the District and, if Contractor did not present the Claim, provide the subcontractor with a statement of the reasons for not having done so.

25.5.3 The Contractor shall bind all its Subcontractors to the provisions of this section and will hold the District harmless against Claims by Subcontractors.

25.6 Government Code Claim Act Claim

25.6.1 If a claim, or any portion thereof, remains in dispute upon satisfaction of all applicable Claim Resolution requirements, including those pursuant to Public Contract Code section 9204, the Contractor shall comply with all claims presentation requirements as provided in Chapter 1 (commencing with section 900) and Chapter 2 (commencing with section 910) of Part 3 of Division 3.6 of Title 1 of Government Code as a condition precedent to the Contractor's right to bring a civil action against the District. For purposes of those provisions, the running of the time within which a claim must be presented to the District shall be tolled from the time Contractor submits its written Claim until the time the Claim is denied, including any time utilized by any applicable meet and confer process.

25.7 Claim Resolution pursuant to Public Contract Code section 20104 et seq.

25.7.1 In the event of a disagreement between the parties as to performance of the Work, the interpretation of this Contract, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve all claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between Contractor and District by those procedures set forth in Public Contract Code section 20104, et seq., to the extent applicable.

25.7.1.1 Contractor shall file with the District any written Claim, including the documents necessary to substantiate it, upon the application for final payment.

25.7.1.2 For claims of less than fifty thousand dollars ($50,000), the District shall respond in writing within forty-five (45) days of receipt of the Claim or may request in writing within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.7.1.2.1 If additional information is required, it shall be requested and provided by mutual agreement of the parties.

25.7.1.2.2 District's written response to the documented Claim shall be submitted to the Contractor within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by the Contractor to produce the additional information, whichever is greater.

25.7.1.3 For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the District shall respond in writing to all written Claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.7.1.3.1 If additional information is required, it shall be requested and provided upon mutual agreement of the District and the Contractor.

25.7.1.3.2 The District's written response to the Claim, as further documented, shall be submitted to the Contractor within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor to produce the additional information or requested documentation, whichever is greater.

25.7.1.4 If Contractor disputes the District’s written response, or the District fails to respond within the time prescribed, Contractor may so notify the District, in writing, either within fifteen (15) days of receipt of the District's response or within fifteen (15) days of the District's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the District shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

25.7.1.5 Following the meet and confer conference, if the Claim or any portion of it remains in dispute, the Contractor may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions the running of the time within which a claim must be filed shall be tolled from the time the Contractor submits its written Claim until the time the Claim is denied, including any period of time utilized by the meet and confer process.

25.7.1.6 For any civil action filed to resolve claims filed pursuant to this section, within sixty (60) days, but no earlier than thirty (30) days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

25.7.1.7 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of the Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986, (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

25.7.1.8 The District shall not fail to pay money as to any portion of a Claim which is undisputed except as otherwise provided in the Contract Documents. In any suit filed pursuant to this section, the District shall pay interest due at the legal rate on any arbitration award or judgment. Interest shall begin to accrue on the date the suit is filed in a court of law.

25.7.2 Contractor shall bind its Subcontractors to the provisions of this Section and will hold the District harmless against disputes by Subcontractors.

25.8 Claim Resolution Non-Applicability

25.8.1 The procedures for dispute and claim resolutions set forth in this Article shall not apply to the following:

25.8.1.1 Personal injury, wrongful death or property damage claims;

25.8.1.2 Latent defect or breach of warranty or guarantee to repair;

25.8.1.3 Stop payment notices;

25.8.1.4 District's rights set forth in the Article on Suspension and Termination;

25.8.1.5 Disputes arising out of labor compliance enforcement by the Department of Industrial Relations; or

25.8.1.6 District rights and obligations as a public entity set forth in applicable statutes; provided, however, that penalties imposed against a public entity by statutes, including, but not limited to, Public Contract Code sections 20104.50 and 7107, shall be subject to the Claim Resolution requirements provided in this Article.

25.9 Attorney's Fees

25.9.1 Should litigation be necessary to enforce any terms or provisions of this Agreement, then each party shall bear its own litigation and collection expenses, witness fees, court costs and attorney's fees.

26. STATE LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

26.1 Labor Compliance and Enforcement

Since this Project is subject to labor compliance and enforcement by the Department of Industrial Relations ("DIR"), Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code and Title 8 of the California Code of Regulations, including, without limitation, the requirement that the Contractor and all Subcontractors shall timely furnish complete and accurate electronic certified payroll records directly to the DIR. The District may not issue payment if this requirement is not met.

26.2 Wage Rates, Travel, and Subsistence

26.2.1 Pursuant to the provisions of Article 2 (commencing at section 1770), Chapter 1, Part 7, Division 2, of the Labor Code, 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 to execute this Contract are on file at the District's principal office and copies will be made available to any interested party on request. Contractor shall obtain and post a copy of these wage rates at the job site.

26.2.2 Holiday and overtime work, when permitted by law, shall be paid for at the general prevailing rate of per diem wages for holiday and overtime work on file with the Director of the Department of Industrial Relations, unless otherwise specified. The holidays upon which those rates shall be paid need not be specified by the District, but shall be all holidays recognized in the applicable collective bargaining agreement. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.

26.2.3 Contractor shall pay and shall cause to be paid each worker engaged in Work on the Project the general prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations, regardless of any contractual relationship which may be alleged to exist between Contractor or any Subcontractor and such workers.

26.2.4 If during the period this bid is required to remain open, the Director of the Department of Industrial Relations determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract is to be performed, such change shall not alter the wage rates in the Notice to Bidders or the Contract subsequently awarded.

26.2.5 Pursuant to Labor Code section 1775, Contractor shall, as a penalty to District, forfeit the statutory amount (believed by the District to be currently up to two hundred dollars ($200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates, determined by the District and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by Contractor or by any Subcontractor under it. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by Contractor.

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

26.2.7 Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by Labor Code section 3093, and similar purposes.

26.2.8 Contractor shall post at appropriate conspicuous points on the Site of Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, Contractor shall post a sign-in log for all workers and visitors to the Site, a list of all subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).

26.3 Hours of Work

26.3.1 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 Contractor or by any Subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by Contractor 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.

26.3.2 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 Contract. The record shall be kept open at all reasonable hours to the inspection of District and to the Division of Labor Standards Enforcement of the DIR.

26.3.3 Pursuant to Labor Code section 1813, Contractor shall as a penalty to the District forfeit the statutory amount (believed by the District to be currently twenty-five dollars ($25)) for each worker employed in the execution of this Contract by 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 forty (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.

26.3.4 Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the District.

26.4 Payroll Records

26.4.1 Contractor shall upload, and shall cause each Subcontractor performing any portion of the Work under this Contract to upload, an accurate and complete certified

payroll record ("CPR") electronically using DIR's eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online on a weekly basis and within ten (10 days of any request by the District or Labor Commissioner at http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html or current application and URL, 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 the Contractor and/or each Subcontractor in connection with the Work.

26.4.1.1 The CPRs enumerated hereunder shall be filed directly with the DIR on a weekly basis or to the requesting party, whether the District or DIR, within ten (10) days after receipt of each written request. The CPRs from the Contractor and each Subcontractor for each week shall be provided on or before Wednesday of the week following the week covered by the CPRs. District may not make any payment to Contractor until:

26.4.1.1.1 Contractor and/or its Subcontractor(s) provide CPRs acceptable to the DIR; and

26.4.1.1.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs to the DIR in a timely manner may directly delay Contractor's payment.

26.4.2 All CPRs shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

26.4.2.1 A certified copy of an employee's CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

26.4.2.2 CPRs shall be made available for inspection or furnished upon request to a representative of District, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the DIR.

26.4.2.3 CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through the District, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by Contractor, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Contractor.

26.4.3 Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by District, Division of Apprenticeship Standards, or 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 Contractor awarded Contract or performing Contract shall not be marked or obliterated.

26.4.4 Contractor shall inform District of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address.

26.4.5 In the event of noncompliance with the requirements of this section, Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply with this section. Should noncompliance still be evident after the ten (10) day period, Contractor shall, as a penalty to District, forfeit up to one hundred dollars ($100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Labor Commissioner, these penalties shall be withheld from progress payments then due.

26.4.6 [RESERVED]

26.5 [RESERVED]

26.6 Apprentices

26.6.1 Contractor acknowledges and agrees that, if this Contract involves a dollar amount greater than or a number of working days greater than that specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of Contractor to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.

26.6.2 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.

26.6.3 Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.

26.6.4 Only apprentices, as defined in section 3077 of the Labor Code, 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. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

26.6.5 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving the Contractor or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.

26.6.6 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractor may be required to make contributions to the apprenticeship program.

26.6.7 If Contractor or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:

26.6.7.1 Be denied the right to bid on any subsequent project for one (1) year from the date of such determination;

26.6.7.2 Forfeit as a penalty to District the full amount as stated in 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 and under the authority of the Chief of the Division of Apprenticeship Standards.

26.6.8 Contractor and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

26.6.9 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, 9th floor, San Francisco, California 94102.

26.7 Non-Discrimination

26.7.1 Contractor herein agrees to comply with the provisions of the California Fair Employment and Housing Act as set forth in part 2.8 of division 3 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246; and

all administrative rules and regulations found to be applicable to Contractor and Subcontractor.

26.7.2 Special requirements for Federally Assisted Construction Contracts: During the performance of this Contract, Contractor agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

26.8 Labor First Aid

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. § 651 et seq.) and the California Occupational Safety and Health Act of 1973 (Lab. Code, § 6300 et seq.; 8 Cal. Code of Regs., § 330 et seq.).

27. [RESERVED]

28. MISCELLANEOUS

28.1 Assignment of Antitrust Actions

28.1.1 Section 7103.5(b) of the Public Contract Code states:

In entering into a public works contract or 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 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. Sec. 15) or under the Cartwright Act (Chapter 2 (commending with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, which 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.

28.1.2 Section 4552 of the Government Code states:

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body 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. Sec. 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, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

28.1.3 Section 4553 of the Government Code states:

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

28.1.4 Section 4554 of the Government Code states:

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

28.1.5 Under this Article, "public purchasing body" is District and "bidder" is Contractor.

28.2 Excise Taxes

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 Federal Excise Tax because it is a sale to a State or Local Government for its exclusive use, District, upon request, will execute documents necessary to show (1) that 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 District. No Federal Excise Tax for such materials shall be included in any Contract Price.

28.3 Taxes

Contract Price is to include any and all applicable sales taxes or other taxes that may be due in accordance with section 7051 et seq. of the Revenue and Taxation Code, Regulation 1521 of the State Board of Equalization or any other tax code that may be applicable.

28.4 Shipments

All shipments must be F.O.B. destination to Site or sites, as indicated in the Contract Documents. There must be no charge for containers, packing, unpacking, drayage, or insurance. The total Contract Price shall be all inclusive (including sales tax) and no additional costs of any type will be considered.

28.5 Compliance with Government Reporting Requirements

If this Contract is subject to federal or other governmental reporting requirements because of federal or other governmental financing in whole or in part for the Project of which it is part, or for any other reason, Contactor shall comply with those reporting requirements at the request of the District at no additional cost.

END OF DOCUMENT

DOCUMENT 00 73 13

SPECIAL CONDITIONS

1. Badge Policy for Contractors

All Contractors doing work for the District will provide their workers with identification badges. These badges will be worn by all members of the Contractor's staff who are working in a District facility.

1.1 Badges must be filled out in full and contain the following information:

1.1.1 Name of Contractor

1.1.2 Name of Employee

1.1.3 Contractor's address and phone number

1.2 Badges are to be worn when the Contractor or his/her employees are on site and must be visible at all times. Contractors must inform their employees that they are required to allow District employees, the Architect, the Construction Manager, the Program Manager, or the Project Inspector to review the information on the badges upon request.

1.3 Continued failure to display identification badges as required by this policy may result in the individual being removed from the Project or assessment of fines against the Contractor.

2. Substitution for Specified Items

2.1 Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified.

2.1.1 If the material, process, or article offered by Contractor is not, in the opinion of the District, substantially equal or better in every respect to that specified, then Contractor shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

2.1.2 This provision shall not be applicable with respect to any material, product, thing or service for which District made findings and gave notice in accordance

with Public Contract Code section 3400(c); therefore, Contractor shall not be entitled to request a substitution with respect to those materials, products or services.

2.2 A request for a substitution shall be submitted as follows:

2.2.1 Contractor shall notify the District in writing of any request for a substitution at least ten (10) days prior to bid opening as indicated in the Instructions to Bidders.

2.2.2 Requests for Substitutions after award of the Contract shall be submitted within thirty-five (35) days of the date of the Notice of Award.

2.3 Within 35 days after the date of the Notice of Award, Contractor shall provide data substantiating a request for substitution of "an equal" item, including but not limited to the following:

2.3.1 All variations of the proposed substitute from the material specified including, but not limited to, principles of operation, materials, or construction finish, thickness or gauge of materials, dimensions, weight, and tolerances;

2.3.2 Available maintenance, repair or replacement services;

2.3.3 Increases or decreases in operating, maintenance, repair, replacement, and spare parts costs;

2.3.4 Whether or not acceptance of the substitute will require other changes in the Work (or in work performed by the District or others under Contract with the District); and

2.3.5 The time impact on any part of the Work resulting directly or indirectly from acceptance of the proposed substitute.

2.4 No substitutions shall be made until approved, in writing, by the District. The burden of proof as to equality of any material, process, or article shall rest with Contractor. The Contractor warrants that if substitutes are approved:

2.4.1 The proposed substitute is equal or superior in all respects to that specified, and that such proposed substitute is suitable and fit for the intended purpose and will perform adequately the function and achieve the results called for by the general design and the Contract Documents;

2.4.2 The Contractor provides the same warranties and guarantees for the substitute that would be provided for that specified;

2.4.3 The Contractor shall be fully responsible for the installation of the substitute and any changes in the Work required, either directly or indirectly, because of the acceptance of such substitute, with no increase in Contract Price or Contract Time. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time;

2.4.4 The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute; and

2.4.5 The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit.

2.5 In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

2.6 In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

2.7 Contractor shall be responsible for any costs the District incurs for professional services, DSA fees, or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods. District may deduct those costs from any amounts owing to the Contractor for the review of the request for substitution, even if the request for substitution is not approved. District, at its sole discretion, shall deduct from the payments due to and/or invoice Contractor for all the professional services and/or DSA fees or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods arising herein.

3. As-Builts and Record Drawings

4. Fingerprinting

Contractor shall comply with the provisions of Education Code section 45125.2 regarding the submission of employee fingerprints to the California Department of Justice and the completion of criminal background investigations of its employees, its subcontractor(s), and its subcontractors' employees. Contractor shall not permit any employee to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, that such employee has not been convicted of a violent or serious felony, as defined in

Education Code section 45122.1. Contractor shall fully complete and perform all tasks required pursuant to the Criminal Background Investigation/ Fingerprinting Certification.

5. Construction Manager

The District will use a Construction Manager on the Project that is the subject of this Contract. 19six Architects are the Construction Manager for this Project.

END OF DOCUMENT

SECTION 01 11 00 – SUMMARY OF WORK

PART 1 - **GENERAL**

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. The work of this contract includes but is not limited to the following:

1. Provide and furnish all labor, material, equipment, transportation, and any additional Professional Engineering Services necessary for installation of on-site improvements along with main administration building modifications for:

a. Frontage Fencing and Main Entrance Modifications

C. Construction of On-Site improvements consisting of, but not limited to, the following:

1. Site accessibility improvements.
2. Fencing and gates.
3. Entry lobby modifications

D. Provide and furnish all labor, material and equipment necessary for site improvements along with all other alternate bid items approved and accepted for construction by the **Owner**.

E. Refer to these specifications and the Construction Drawings for detailed description of the work required.

1. All directives and/or changes that affect this project shall come from the **Owner** to the **Architect** prior to being included into the project.

2. Should any existing conditions such as deterioration or noncomplying construction be discovered that is not covered by the DSA approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work.

F. Related work:

1. Documents affecting work of this Section and Divisions 2 through 49 of Specifications also include, but are not necessarily limited to, General Conditions, and Division 1 of these Specifications.
2. Notices, Instructions, Bid Forms, Agreements and other titled documents are listed in Division 0.

G. Project Contractors:

1. All work shall be performed by California Licensed Contractors.

a. The **General Contractor** shall coordinate all construction work and control the project and subcontractors, in accordance with Contract Documents.

2. **General Contractor's** work shall also include but not be limited to the following, except as specifically noted, provide and pay for:
   a. Water, heat, telephones, and utilities required for construction.
   b. Other facilities and services necessary for proper execution and completion of the work.
   c. Secure and pay for, as necessary for the proper execution and completion of work, and as applicable at the time of receipt of bills.
   d. Give required notices.
3. Construction shall comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities, which govern the performance of the work. Copies shall be retained at all times at the project site by the Construction Superintendent, refer to Section 01 41 00 – Regulatory Requirements and Section 01 42 00 – References.
4. Promptly submit written notice of any observed variances of Contract Documents from legal requirements for **Architect's** review and interpretation.
5. Enforce strict discipline and good order among employees. Do not employ unfit persons or persons not skilled in assigned task on the work.

H. Sustainability
   1. This project is subject to the California Green Building Standards Code
      a. Refer to Division 1 and project specification sections for related requirements.

1.2 CONTRACT METHOD

A. Construct Work under a lump sum Contract or as defined in the proposal, addenda, and including alternates accepted by the **Owner**.

1.3 GENERAL CONTRACTOR USE OF PREMISES

A. Confine Operations at project site to areas permitted by:
   1. Law
   2. Ordinances
   3. Permits
   4. Contract Documents
   5. Agencies having jurisdiction

B. Do not unreasonably encumber site with materials or equipment.

C. Do not load structure with weight that will endanger it.

D. **General Contractor** shall assume full responsibility for protection and safekeeping of products stored on premises.

E. Obtain and pay for use of any additional storage or work areas needed for operations.

PART 2 - **PRODUCTS**
Not Used

PART 3 - **EXECUTION**
Not Used

END OF SECTION 01 11 00

SECTION 01 11 16 – WORK BY OWNER

PART 1 - **GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section. This includes the demolition of existing portables, conversion of the natural field to artificial turf, construction of a new track and field with a pre-certified (PC) scoreboard, and installation of new fences and gates.

B. Coordinate the work of this Section with related trades.

C. Verify applicable dimensions at the jobsite.

D. Install new and existing items of Equipment furnished by **Owner**.

1. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to complete the work required in this section as outlined in the **RESPONSIBILITY LIST**.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

C. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission

1.3 SUBMITTALS (Owner's Responsibility)

A. It shall be the **Owner's** responsibility to submit shop drawings, manufacturer's literature and any necessary technical installation information required by the **General Contractor** to complete their responsibility under this Section.

1. Refer to Division 1 for substitution, deviation and/or submittal procedures.

PART 2 - **PRODUCTS**

2.1 EQUIPMENT RESPONSIBILITY

A. This article defines symbols, which have been assigned to products or equipment items specified in other sections of these specifications in order to designate contract responsibility for such equipment items.

1. General Requirements: Assignment of any equipment responsibility symbol to products or equipment items shall define the **General Contractor's** responsibility for the item of equipment.
2. **General Contractor's** Requirements shall be as follows:
    a. Verification of utility requirements for all listed equipment items regardless of the installation responsibility of the assignment. Upon a dated written request from the **General Contractor**, at least 30 days prior to requiring such information, the **Owner** shall, in a "Timely Manner", make available dimensions and utility (electrical, mechanical, plumbing and/or structural) characteristics of **Owner** furnished items.
    b. Definition of "Timely Manner": shall mean that the **Owner** shall not cause any construction delay for the **General Contractor** due to the lack of required submittal information necessary for the installation of any utility requirement.
3. Proved for utility rough-ins for equipment items where required, irrespective of equipment responsibility designation unless specifically noted otherwise.
    a. Rough-in locations, sizes, capacities, etc. shall be as noted.
    b. If the **Owner** substitutes item similar to that specified, there shall be no change in rough-in cost unless substitution occurs after rough-in is completed or rough-in involves making changes to the utilities or capacity differ from that required by item originally specified.

B. Responsibility symbol lists: Note that:

    a. "O" designates the **Owner**
    b. "C" designates the **General Contractor**
    c. "F" indicates **Furnished**
    d. "I" indicates **Installed**
    e. Each item of equipment is assigned to one of the following responsibility categories:
        1. **O.F.C.I.** Furnished by the **Owner**; installed by the **General Contractor**. The **Owner** and the **General Contractor** will coordinate deliveries of equipment to coincide with the construction schedule, thereby minimizing storage of equipment before installation.
        2. The **Owner** shall:
            a. Furnish all standard integral parts of equipment.
            b. Deliver items to Offsite Storage Location, which shall be determined later.
            c. Provide, in a timely manner, all required shop drawings submittals and manufacturer's literature and any necessary technical installation information required by the **General Contractor** to complete their responsibility under this Section.
        3. The **General Contractor** shall:
            a. Receive items and take delivery at **Owner** Offset Storage Location and give written receipt for item at time of delivery noting visible defects or omissions; if such declaration is not given, the **General Contractor** shall assume responsibility for such defects and omissions.

1. Refer to Division 1 for product delivery, storage and handling requirements.

b. Store item until ready for installation.
c. Uncrate, assemble and set item in place.
d. Install items in accord with manufacturer's recommendations, instructions and shop drawings under supervision of manufacturer's representative, supplying labor and material required and making mechanical, plumbing and electrical connections necessary to operate equipment.

f. **O.F.O.I.** Furnished by the **Owner**; Installed by the **Owner**.

1. The **Owner** shall:

a. Deliver items to Offsite Storage Location, which shall be determined later or hold at **Owner's** own location for delivery to job site at appropriate time.

2. The **General Contractor** shall: (if item is to be stored at project site or **General Contractor's** offsite location)

a. Receive items and take delivery at **Owner's** Offset Storage Location and give written receipt for item at time of delivery noting visible defects or omissions; if such declaration is not given, the **General Contractor** shall assume responsibility for such defects and omissions.

1. Refer to Division 1 for product delivery, storage and handling requirements.

b. Store item until ready for installation.

C. The following project components shall be furnished and installed per assigned responsibility:

1. Refer to drawings.

2.2 MATERIALS

A. **Owner**-furnished and **Contractor**-installed (OFCI) items shall be indicated on the Drawings and as herein listed.

B. **Owner**-furnished and **Owner**-installed (OFOI) items shall be as indicated on the Drawings and as herein listed.

2.3 EQUIPMENT AND PRODUCT LIST

A. The following products and equipment items shall be furnished and installed as part of this **PROJECT** in accordance with the following descriptions and responsibility assignments:

B. Refer to Division 1 for submittal procedures requirements.

PART 3 - **EXECUTION**

3.1 PREPARATION

A. Make all preparations necessary for proper installation of **Owner**-furnished items in accord with item manufacturer's printed instructions for **Owner's** specific written instructions.

B. Install **Owner**-furnished items in strict accord with **Owner**-supplied shop drawings, product data, and written instructions.

3.2 INSTALLATION

A. Installation sequencing: Verify and coordinate any special conditions such as unusually large sized components, etc., which may affect easy installation of equipment items. **Owner** shall not be responsible for the cost of removing or replacing completed construction which might conflict with the installation requirements of any equipment item.

B. Refer to Drawings for specific installation and installation materials requirements.

3.3 PROTECTION AND CLEANING

A. Refer to Division 1 for protection and cleaning requirements.

B. Keep areas of work free from accumulated debris, rubbish and waste materials as work progresses.

C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

1. Clean adjacent surfaces free of caulking or sealant with mechanical action or solvent as necessary, avoiding damage to other materials.
2. Remove masking tape immediately after tooling joints, leaving finished work in neat and clean condition.
3. Clean up and leave premise broom clean. Clean adjoining work spotted or otherwise defaced by work of this Section.

D. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.

E. After completion of work in this Section, remove all erection equipment and debris from site.

END SECTION 01 11 16

SECTION 01 21 00 - ALLOWANCES

PART 1 - **GENERAL**

1.1 DESCRIPTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Allowances described herein have been established to allow **Owner** to establish a fund for each item herein listed which the **Owner** can use at their discretion.

1.2 RELATED REQUIREMENTS

A. Refer to Division 0 – Bidding and Contract Requirements and Division 1 – General Requirements.

B. Pertinent Specification Sections: Requirements of individual Allowance items.

1.3 MODIFICATIONS TO WORK AND/OR MATERIALS

A. If **Owner** elects to proceed with Allowance items, make all modifications to Work required of selected Allowances.

1. Amount: $50,000

B. Provide and furnish all labor, material and equipment necessary for services to install and construct Allowance bid items approved and accepted for construction by the **Owner**.

A. All allowances shall be tracked separately by **General Contractor** and included in Payment Requests.

B. All Allowance money not expended as approved by **Owner** shall be credited back to **Owner** during project closeout.

END OF SECTION 01 21 00

SECTION 01 25 00 SUBSTITUTION & DEVIATION PROCUDRES

PART 1 **- GENERAL**

1.1 WORK INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. Ensure that specified products are furnished and installed in accordance with design intent by following procedures established herein for Substitution and Deviation requests for review by the **Architect** and their Engineers and consultants.

C. The following forms are included within the scope of this specification section, and shall be used as needed and/or required:

1. During Bidding Phase:

a. Substitution Request Form

1) Electronic File form will be supplied by **Architect**.
2) For all product substitutions, the **General Contractor** shall complete all sections of the form and provide for **Architect's** review within the time frame allowed prior to bid date.
3) All related or supporting work that would be required to change must be identified in the Substitution Request.

a) Design and construction work and costs associated with a Substitution Request shall be included in the proposed substitution.
b) Design and construction work and costs associated with a proposed Substitution which are not identified at time of **Architect's** acceptance of proposed substitution, but which are subsequently found to be required, shall be provided by the **General Contractor** at no additional cost to the **Owner**.

2. During Construction Phase:

a. Deviation Request Form

1) Electronic File will be supplied by **Architect**.
2) For all proposed deviations, the **General Contractor** shall complete all sections of the form and provide at the time of submittal **Architect's** review and consideration.
3) All related or supporting work that would be required to change must be identified in the Deviation Request.

a) Design and construction work and costs associated with a Substitution Request shall be included in the proposed deviation.
b) Design and construction work and costs associated with a proposed Deviation which are not identified at time of **Architect's** acceptance of proposed deviation, but which are subsequently found to be required, shall be provided by the **General Contractor** at no additional cost to the **Owner**.

1.2 QUALITY ASSURANCE

A. During Bidding:

1. Coordination of Substitution Requests:

a. General:

1) Prior to each Substitution Request, the **General Contractor** shall carefully review and coordinate all aspects of each item being proposed.
2) **General Contractor** shall verify that each item of the Substitution Request conform in all respects with the specified requirements.
3) **General Contractor's** signature is required on each Substitution Request, which shall certify that required coordination of all items has been performed.
4) It shall be the **General Contractor's** responsibility to ensure there is no conflict with other items and to notify the **Architect** in any case where the **General Contractor's** Substitution Request may concern work by another Contractor or the **Architect**. The **General Contractor** is solely responsible for coordination of Substitution Requests among all related crafts performing the Work.
5) The review of the **General Contractor's** Substitution Requests shall not relieve the **General Contractor** of responsibility for any error or of any obligation for accuracy of dimensions and details, for agreement with and conformity to the Contract, or responsibility to fulfill the Contract as prescribed. Nor shall such review be considered as approval of any deviation or conflict unless the **Architect** has been expressly advised of the same as set forth immediately above, and the **Architect** has expressly approved such deviation or conflict.
6) Proposed Substitutions shall not reduce the Sustainability Criteria requirements for project as identified in Division 1.

B. During Construction:

1. Coordination of Deviations:

a. **General Contractor** shall submit a request for Deviations when they deem it necessary to provide a complete submittal, and /or when minor changes are felt needed.

1) Deviations shall be minor in scope and shall not change manufacturers or assemblies.
2) Proposed Substitutions shall not reduce the Sustainability Criteria requirements for project as identified in Division 1.

PART 2 **- PRODUCTS**

2.1 SUBSTITUTIONS

A. General:

1. Use during Bidding.
2. Refer to specific Specification Sections for items not allowing a substitution.

B. **Architect's** and **Owner's** review and acceptance required during bidding phase.

1. Contract is based solely on materials, equipment and construction industry standards listed or described in the bid documents (including addenda), and does not contemplate any substitutions.
2. Refer to required Substitution Request Form in this Section.

C. "Or equal" and/or "Equivalent"

1. Where this phrase occurs in the Contract Documents, it refers to a PRODUCT which is equivalent to the specified product in terms of chemical composition, color, finish, configuration, and performance standards, etc.; do not assume that the materials, equipment, or methods will be approved as equal/equivalent unless the item has been specifically so reviewed and approved for this Work.

    a. Any product by a Manufacturer listed as an "Acceptable Manufacturer" is not necessarily considered an "Or Equal" or "Equivalent". All proposed products which are not the specified product are subject to the equivalency criteria as noted above.

2. The decision of the **Architect** and **Owner** shall be final.

D. In making a request for substitution, the **General Contractor** shall provide the following in accordance with the Substitution Request Form and Bidding requirements set forth in this Section.

1. They have personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified, including size, chemical composition, color, finish, configuration, performance standards, functionality, compatibility with other assemblies and systems, etc.
2. They will provide the same warranty for the proposed substitution as for product or method specified.
3. They will coordinate installation of accepted substitution into work, making such changes as may be required for the work and all associated/supporting trades' work to be complete in all respects at no additional cost to the **Owner**.

    a. They shall waive all claims for additional costs related to the substitution which consequently or subsequently become apparent.

4. Cost data is complete and includes all related costs under their Contract.
5. Shall submit detail itemized cost statement showing labor, material installation, overhead and profit for each substitution being requested.

E. Substitutions will not be considered if:

1. Acceptance of substitution shall require substantial revision of Contract Documents by the **Architect**, **Owner** and/or their Consultants.

2.2 DEVIATIONS

A. General:

1. Use during Construction.
2. Refer to Specific Specification Sections for items not allowing a deviation.

B. **Architect's** and **Owner's** review and acceptance required during construction phase.

1. Contract is based solely on materials, equipment and construction industry standards listed or described in the bid documents (including addenda), and review of proposed deviations shall be done with understanding that this is done to accommodate unforeseen conditions.
2. Refer to required Deviation Request Form included herein.

C. "Or equal" and/or "Equivalent"

1. Where this phrase occurs in the Contract Documents, it refers to a PRODUCT which is equivalent to the specified product in terms of chemical composition, color, finish, configuration, and performance standards, etc.; do not assume that the materials, equipment, or methods will be approved as equal/equivalent unless the item has been specifically so reviewed and approved for this Work.

    a. Any product by a Manufacturer listed as an "Acceptable Manufacturer" is not necessarily considered an "Or Equal" or "Equivalent"; all proposed products which are not the specified product are subject to the equivalency criteria as noted above.

2. The decision of the **Architect** and **Owner** shall be final.

D. In making a request for deviation, the **General Contractor** shall provide the following in accordance with the Deviation Request Form.

1. They have personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified, including size, chemical composition, color, finish, configuration, performance standards, functionality, compatibility with other assemblies and systems, etc.
2. They will provide the same warranty for the proposed deviation as for product or method specified.
3. They will coordinate installation of accepted deviation into work, making such changes as may be required for work and all associated/supporting trades' work to be complete in all respects at no additional cost to the **Owner**.
4. They shall waive all claims for additional costs related to the deviation, which consequently or subsequently become apparent.
5. Cost data is complete and includes all related costs under their Contract.
6. Shall submit detail itemized cost statement showing labor, material installation, overhead and profit for each substitution.

E. Deviations will not be considered if:

1. They are indicated or implied on Shop Drawings or Project Data submittals without formal request submitted in accordance with this Section.
2. Acceptance of deviation shall require substantial revision of Contract Documents by the **Architect**, **Owner** and/or their Consultants.
3. The cost of additional submittal services for Architectural review or redesign is not compensated for by the **Owner**.

PART 3 - **EXECUTION**
Not Used

END OF SECTION 01 25 00

DEVIATION REQUEST FORM

Note: This form used during Construction phase only

TO: MODUS

PROJECT: North Cottonwood Elementary School - Frontage Fencing and Main Entrance Modifications

SPECIFIED ITEM: _____

Section No.: _____
Paragraph No.: _____
Description: _____

Proposed Deviation: _____

Reason for Deviation:

I. Information on changes to Drawings and/or Specifications which proposed Deviation will require: provide written response below or attach responses if additional space is required.

1. Will changes to the building design, including engineering & detailing be caused by this Deviation?

2. What effect does Deviation have on other trades?

3. What are the differences between proposed Deviation & specified item?

4. What are differences in product cost and delivery time?

5. What is the manufacturer's written warranty and/or guaranty of proposed Deviation?

II. Attach data which includes: product description, specifications, drawings, photographs, performance and test data required for evaluation of request; with applicable portions of data clearly identified.

III. Attach data which includes a description of changes to Contract Documents that proposed Deviation will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. The proposed Deviation does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested Deviation.
3. The proposed Deviation will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be readily available for the proposed Deviation.
5. Finishes will not be altered
6. Proposed deviation shall not alter required compliance with agencies having jurisdiction and/or code requirements.

The undersigned further states that the function, appearance, and quality of the proposed Deviation are equivalent or superior to the specified item.
Submitted by:

Subcontractor Signature: _____

Subcontractor Name & Company (print): _____

Address: _____

Date: _____ Telephone: _____

General Contractor Signature: _____

General Contractor Name & Company (print): _____

Address: _____

_____

Date: _____ Telephone: _____

Attachments: _____

_____

For use by Architect:

[ ] Accepted.
[ ] Not Accepted.
[ ] Accepted as noted.
[ ] Received too late.

By: _____

Date: _____

Remarks: _____

_____

_____

_____

_____

END OF DOCUMENT

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SUBSTITUTION REQUEST FORM

TO: MODUS

PROJECT: North Cottonwood Elementary School - Frontage Fencing and Main Entrance Modifications

SPECIFIED ITEM: _____

Section No.: _____
Paragraph No.: _____
Description: _____

Proposed Substitution: _____

Reason for Substitution:

I. Information on changes to Drawings and/or Specifications which proposed Substitution will require: provide written response below or attach responses if additional space is required.

1. Will changes to the building design, including engineering & detailing be caused by this Substitution?

2. What effect does Substitution have on other trades?

3. What are the differences between proposed Substitution & specified item?

4. What are differences in product cost and delivery time?

5. What is manufacturers written warranties / guarantees of proposed Substitution?

II. Attach data which includes: product description, specifications, drawings, photographs, performance and test data required for evaluation of request; with applicable portions of data clearly identified.

III. Attach data which includes a description of changes to Contract Documents that proposed Substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. The proposed Substitution does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested Substitution.
3. The proposed Substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be readily available for the proposed Substitution.
5. Finishes will not be altered

The undersigned further states that the function, appearance, and quality of the proposed Substitution are equivalent or superior to the specified item.
Submitted by:
Subcontractor Signature: _____

Subcontractor Name & Company (print): _____

Address: _____

Date: _____ Telephone: _____

General Contractor Signature: _____

General Contractor Name & Company (print): _____

Address: _____

Date: _____ Telephone: _____

Attachments: _____

For use by Architect:

[ ] Accepted.
[ ] Not Accepted.
[ ] Accepted as noted.
[ ] Received too late.

By: _____

Date: _____

Remarks: _____

END OF DOCUMENT

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Section 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Promptly implement change order procedures as required specified for review by the **Architect**.

1. Provide full written data required to evaluate changes.
2. Maintain detailed records of work done on time-and-material/force account basis.
3. Provide full documentation to **Architect** on request.

C. Designate in writing, names of authorized members of **General Contracto**r's organization who are authorized to accept changes in Work, and who are responsible for informing others in **General Contractor's** employ of authorization of changes in Work.

D. **Owner** will designate person who is authorized to execute Change Orders.

1.2 RELATED REQUIREMENTS

A. Conditions of the Contract:

1. Methods of determining cost or credit to **Owner** resulting from changes in Work made on time-and-material/force account basis.
2. **General Contractor's** claims for additional costs.

1.3 DEFINITIONS

A. Proposal Request: See General Conditions & attached document.

B. Change Order: Written order to **General Contractor**, signed by **Owner** and **Architect**, amending Contract Documents as described.

1. Authorizes **General Contractor** to proceed with change altering Contract Sum, Contract Time or both.

1.4 CLARIFICATION documents for use by **General Contractor** and **Architect**;

A. CLARIFICATON: Architect's Supplemental Instructions

1. Clarification form is attached and part of this Section.

a. **Architect** shall, at their discretion, provide supplemental instructions during the course of construction which can assist the **General Contractor** in their work, such instructions shall be in writing and/or graphical representation (supplemental drawings) and accompanied by the Clarification form.
b. Clarifications are intended to not increase or decrease the project costs, if the **General Contractor** determines that the project cost will change, then written notification will be required to be issued and approved by the **Owner** and **Architect** prior to implementation of the Clarification.

c. Such change request shall be issued as a Proposed Change Order by the **General Contractor** for review and approval.

B. RFI: Contractors Request for Information/Interpretation

1. An RFI is a written request prepared by **General Contractor** asking the **Architect** to provide additional information they deem necessary to clarify an item which the **General Contractor** and/or their subcontractor feels is not clearly shown or called for in the Drawings or Specifications, or to address issues which have arisen due to field conditions.

2. The RFI shall reference all the applicable Contract Documents, including specification section, detail, page numbers, drawing numbers, and sheet numbers, etc. and shall be numbered sequentially.

a. The RFI shall include suggestions and/or interpretations of the issue raised by the RFI if possible.
b. An RFI cannot modify the Contract Sum and/or the Contract time.

3. The **Architect** and their consultants will respond to an RFI in reasonable promptness directly correlated to the complexity of the RFI.

1.5 COST REQUEST BULLETIN – CRB

A. Document: CRB

1. Whether referred to as Cost Request Bulletin, Proposal Request or Request For Proposal, they shall be interchangeable.

B. **Owner**, via **Architect**, may initiate changes by submitting a Cost Request Bulletin to the **General Contractor**. Request will include:

1. Detailed description of Change, Products, and location of change in Project.
2. Supplementary or revised Drawings and Specifications.
3. Projected time span for making change, and specific statement as to whether overtime work is, or is not, authorized.
4. Specific period of time during which requested price would be considered valid.
5. Such request is for information only, and is not an instruction to execute changes, nor to stop Work in progress.

C. **General Contractor** may initiate changes by submitting written Proposal to **Owner,** via **Architect** containing:

1. Description of proposed changes.

a. Related contract drawing, detail, etc.
b. Related specification section and item

2. Statement of reason for requested changes.
3. Statement of effect on Contract Sum and Contract Time.
4. Statement of effect on work of separate contractors.
5. Documentation supporting any proposed change in Contract Sum or Contract Time, as appropriate.

a. Itemize list of material unit costs, taxes, profit, etc.

1.6 CONSTRUCTION CHANGE DIRECTIVE - CCD

A. In lieu of Cost Request Bulletin, the **Architect** may issue a Construction Change Authorization for **General Contractor** to proceed with a change for subsequent inclusion in a Change Order.

B. Authorization will describe changes in Work, both additions and deletions, with attachments of revised Contract Documents to define details of change, and will designate method of determining any change in Contract Sum and any change in Contract Time.

C. **Owner** and **Architect** will sign and date Construction Change Directive as authorization for **General Contractor** to proceed with changes after **General Contractor** has provided acceptable cost evaluation.

1.7 DOCUMENTATION OF PROPOSALS AND CLAIMS

A. Support each quotation for a lump-sum proposal and for each unit price which has not previously been established with sufficient substantiating data to allow **Owner** and **Architect** to evaluate quotation.

B. On request provide additional data to support time and cost computations. Submit data in itemized format, with breakdowns conforming to standard industry categories of work, and including the following:

1. Labor required.
2. Equipment required.
3. Products required.
    a. Recommended source of purchase and unit cost.
    b. Quantities required.
4. Taxes, insurance and bonds.
5. Credit for work deleted from Contract, similarly documented.
6. Overhead and profit.
7. Justification for any change in Contract Time.

C. Support each claim for additional costs, and for work done on time-and-material/force account basis, with documentation as required for lump-sum proposal, plus additional information:

1. Name of **Owner's** authorized agent who ordered the work, and date of order.
2. Dates and times work was performed, and by whom.
3. Time record, summary of hours worked, and hourly rates paid.
4. Receipts and invoices for:
    a. Equipment used, listing dates and times of use.
    b. Products used, listing of quantities.
    c. Subcontracts.

D. Document requests for product substitutions shall be completed as specified in Division 1 for substitution, deviation and/or submittal procedures.

1. Substitution of any structural materials will require a Change Order form be processed.

1.8 CHANGE ORDERS - CO

A. Preparation/General:

1. **General Contractor** will prepare Change Orders for review by **Owner** and **Architect**.
2. Change Order form, see herein attached form CO.
3. Change Order will describe changes in Work, both additions and deletions, with attachments of revised Contract Documents to define details of change.
4. Change Order will provide accounting of adjustment in Contract Sum and in Contract Time.

B. Lump-Sum/Fixed Price Change Order

1. Content of Change Orders will be based on, either:

   a. **Owner's** Cost Request Bulletin and **General Contractor's** responsive Proposal as mutually agreed between **Owner** and **General Contractor**.
   b. **General Contractor's** Proposal for change, as approved by **Owner**.

2. **Owner** and the **Architect** will sign and date Change Order as authorization for **General Contractor** to proceed with changes after **General Contractor** has provided acceptable cost evaluation.
3. **General Contractor** will sign and date Change Order to indicate agreement with terms therein.

1.9 CONTRACTOR SUBMITTALS

A. Periodically revised Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record adjusted Contract Sum.

B. Periodically revise Construction Schedule to reflect each change in Contract Time.

1. Revise schedules to show changes for other items of work affected by changes.

C. Incorporate approved changes into Record Documents upon completion.

PART 2 **- PRODUCTS**
Not Used

PART 3 **- EXECUTION**
Not Used

END OF SECTION 01 26 00

SECTION 01 29 73 – SCHEDULE OF VALUES

PART 1 **- GENERAL**

1.1 DESCRIPTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 General Requirements apply to the work of this Section.

B. Submit a schedule of values to the **Owner** and **Architect** within 14 days after receiving written Notice to Proceed.

C. Upon request by **Owner** or **Architect**, support values given with data substantiating their correctness.

D. Use schedule of values only as basis for **General Contractor's** application for payment.

E. Revise schedule of values at such time as trade contracts are finalized and/or at the time a Change Order is approved.

1.2 FORM OF SUBMITTAL

A. Submit typed schedule on AIA Form G703 – Most current adopted edition.

1. Format: Table of Contents of this Project Manual, with modifications as approved; identify each line item with number and title of major specification sections.
2. Include a separate line item amount for **General Contractor** overhead and profit.
3. Revise schedule to list change orders for each Application for Payment.

B. Use table of contents for this Specification as basis for format for listing costs of work specified in Divisions 2 thru 33.

1.3 PREPARING SCHEDULE OF VALUES

A. Make the sum of the costs listed on the original or revised schedule of values, equal to the total contract sum.

B. Separately itemize all approved Change Orders to adjust contract sum.

C. Do not include **General Contractor** mark-up of line items or trades with the individual line items or trades.

1. Include that mark-up as part of separate line item by itself.

PART 2 **– PRODUCTS**
Not Used

PART 3 **– EXECUTION**
Not Used

END OF SECTION 01 29 73

SECTION 01 29 76 – PROGRESS PAYMENT PROCEDURES

PART 1 **– GENERAL**

1.1 GENERAL

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

1.3 APPLICATIONS FOR PAYMENTS

A. General: Submit notarized Applications for Payment to the **Architect** in accordance with the schedule established by the GENERAL CONDITIONS and the Agreement between the **Owner** and **General Contractor**.

B. Release of Liens: **General Contractor** shall submit with each Application for Payment a *conditional lien* release warranting that title to all Work, labor, materials and equipment covered by the invoice is free and clear of all liens, claims, security interests or encumbrances. With each subsequent Application for Payment, **General Contractor** shall submit notarized *unconditional lien releases* for the previous invoice.

C. Format and Data Required: Submit itemized applications typed on AIA Document G702-Most current adopted edition, "Application and Certificate for Payment", and Continuation Sheet G703-Most current adopted edition. *Substitutions of this form will not be accepted.*

1. Line items and dollar values shall be from the schedule of values accepted by the **Architect**; refer to Division 1 schedule of values requirements.
2. Include names, categories of Work, and amounts for Sub-contractors.
3. Overhead and profit shall be a line item each month for the **General Contractor** and Subcontractor on their G703 sheets.

D. Preparation of Application for Each Progress Payment: *Substitutions of This Form will not be accepted.*

1. Application Form (AIA Document G702- most current adopted edition, confirm with Architect):

   a. Fill in required information, including that for Change Orders executed prior to the date submittal of application.
   b. Fill in summary of dollar values to agree with the respective totals indicated on the Continuation Sheets.
   c. Execute certification with the notarized signature of a person authorized to bind the contracting firm in such matters.

2. Continuation Sheets (AIA Document G703- most current edition, confirm with **Architect**):

   a. Fill in total list of scheduled component items of Work, with item number and the schedule dollar value for each item.
   b. Fill in the dollar value in each column for each scheduled line item when Work has been performed or products stored as approved. Round off values to nearest dollar, unless otherwise specified for the schedule of values.

c. At the end of the Continuation Sheets list each Change Order executed prior to the date of submission. List by Change Order number, description, and breakdown of costs as for an original component item of Work.

E. Substantiating Data for Progress Payments:

1. When substantiating data are required, submit suitable information as specified in Division 1 progress payment procedure requirements with a cover letter identifying:

a. Project.
b. Application number and date.
c. Detailed list of enclosures.

2. Submit one copy of data and cover letter for each copy of application.

F. Preparation of Application for Final Payment:

1. Fill in application form as specified for progress payments.
2. Use Continuation Sheets for presenting the final statement of accounting.
3. Full unconditional lien releases.

G. Submittal Procedure:

1. Submit Applications for Payment for review by **Owner's** On-Site Representative and certification by the **Architect** at the times stipulated in the Agreement.
2. Number: Six copies of each application with original wet signature on each.

1.4 CHANGE ORDERS

A. List all Approved Change Orders on AIA Document G702 – most current edition, confirm with Architect (in space provided).

B. Backup data submitted with Applications for Payment may be used as basis for approving or rejecting costs submitted in Change Orders.

PART 2 - **PRODUCTS**
Not Used

PART 3 **- EXECUTION**
Not Used

END OF SECTION 01 29 76

SECTION 01 31 13 – PROJECT COORDINATION

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. Verify applicable dimensions, clearances and heights at the jobsite.

D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. Coordination of all aspects of site work, including, but not limited to;

    a. Demolition
    b. Testing
    c. Inspections
    d. Mockups

2. Coordination of all aspects of demolition

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC), www.bsc.ca.gov current edition at time of permit issuance.

B. Title 24, California Code of Regulations, California Building Standards Commission .

C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission.

G. Collaborative for High Performance Schools (CHPS), www.chps.net

H. High Performance Incentive Grant, www.dgs.ca.gov/opsc/Programs/highperformanceincentivegrantprogram.aspx

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:

1. Comply with manufacturer's standards.
2. Comply with applicable codes and regulations.
3. Comply with requirements of each specification section.
4. Comply with requirements of drawings.

1.4 SUBMITTALS AND MOCK-UPS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.

B. Submit O&M (Operation and Maintenance) manuals in accordance with Division 1 requirements and as herein specified.

C. Refer to Division 1 for sustainability requirements.

D. Site mock-up: refer to "Mock-Up" heading of each specification section.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

1.7 JOB CONDITIONS

A. Coordinate that all components, substrates, backing, etc. provided by others are installed correctly before proceeding with installation, testing, mockups, inspections, etc. as required to comply with Contract requirements.

1.8 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.

B. Finish work defaced with other materials on surface shall be replaced.

C. Protect work under this section from damage by other trades.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.

B. Refer to each specification section.

1.10 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to the following:

1. Demolition

B. Site improvements including

a. Artificial Turf,

b. Track And Field Installation,

c. Scoreboard Installation,

d. Fencing,

e. And Gates.

C. Related Sections include, but are not limited to, the following:

a. All specification sections.

1.11 OPERATION AND MAINTENANCE DATA

A. Coordinate that all documentation is submitted as part of project closeout.

B. Coordinate that commissioning is done and documented to illustrate compliance with design criteria.

C. Comply with Division 1 closeout submittal procedure requirements.

1.12 SEQUENCING AND SCHEDULING

A. Schedule work and sequence with all trades and commissioning personal, etc.

B. Schedule required testing, inspections, mockup fabrication, etc.

C. **General Contractor** shall coordinate slab vapor emission and PH testing of concrete floors and ensure that concrete treatment within criteria of finish flooring is complete prior to the installation of finish flooring as herein specified.

1.13 GENERAL SYSTEM DESCRIPTION

A. Duties of the **General Contractor**:

1. **General Contractor** shall maintain approved construction drawings, specifications, addendums, change orders and other documents supplied by **Architect** on site at all times.
2. Coordinate the work of all Subcontractors.
3. Establish on-site lines of authority and communication.

a. Schedule and conduct construction progress meetings at intervals agreed upon in Bidding Documents, but not to exceed monthly.

1) Invited attendees shall include;

a) **Owner**
b) **Architect**
c) Subcontractors when needed to address specific issues.

2) **General Contractor** shall keep minutes of all construction progress meetings and submit to **Owner** and **Architect** within 72 hours for review and comment by **Architect** and **Owner**.

a) Meeting minutes shall be finalized prior to next meeting.

3) Refer to Section 01 31 19 Project Meetings

b. Submit construction schedule and schedule updates for review by the **Architect** and **Owner** at meetings and other times as directed by Division 1 – General Requirements.

4. Construction Schedules:

a. Submit construction schedule and required updates at intervals required by the **Owner**.
b. Prepare detailed schedule of operations of all subcontractors/trades.

1) Provide list of subcontracts that state company name, address, phone number and specifications section of work.

c. Monitor construction schedules as work progresses:

1) Identify potential variances between scheduled probable completion dates. Submit schedule updates to **Architect**, once each month with each Application for Payment.
2) Recommend to **Owner** adjustments in schedule to meet required completion date, and submit schedule updates to **Architect**.

d. Observe work to monitor compliance with schedule.

1) Verify that labor and equipment are adequate for the work and the schedule.
2) Verify that product deliveries are adequate to maintain schedule.
3) Report noncompliance to **Owner**, with recommendation for remedy.

e. Comply with requirements of Division 1 – General Requirements.

5. Temporary Facilities:

a. Allocate space as available for each Subcontractor within construction area.
b. Monitor use of temporary utilities.
c. Verify that adequate services are provided to comply with requirements for work and climatic conditions.
d. Verify proper maintenance and operation of temporary facilities.
e. Administer traffic controls where construction operations infringe upon the normal flow of traffic about the site.
f. Refer to Division 1 for temporary facilities and controls requirements.
g. Comply with requirements of Division 1 – General Requirements.

6. Cost Control:

a. Monitor and record actual costs, and estimates for completed work.
b. Incorporate approved changes as they occur.
c. Maintain cost accounting records for authorized work.
d. Develop and implement procedure for review and processing of applications for progress and final payments: Submit Applications for Payment to **Architect** for certification to **Owner** for payment.
e. Comply with requirements of Division 1 – General Requirements.

7. Changes:

a. Recommend necessary or desirable changes to **Owner** and **Architect**.
b. Review Subcontractor's requests for changes and for substitutions; submit recommendation to **Owner** and **Architect**.
c. Process change orders to Subcontractors.
d. Comply with requirements of Division 1 – General Requirements.

8. Permits and Fees: Verify that Subcontractors have obtained required permits for inspections and for temporary facilities.
9. Interpretations of Contract Documents:

a. Consult with **Architect** to obtain interpretations.
b. Assist in resolution of questions which may arise.
c. Transmit written interpretations to concerned parties.

10. Administer processing of shop drawings, product data and samples.

11. Maintain reports and records at site:
    a. Daily log of progress of work, available to **Architect** and **Owner**.
    b. Records
        1) Contracts
        2) Purchases
        3) Materials and equipment records.
        4) Applicable handbooks, codes and standards.
    c. Obtain information from Subcontractors, and maintain record documents.
    d. At completion of project, deliver all necessary records to **Owner**.
    e. Assemble documentation for handling of claims and disputes.
    f. Comply with requirements of Division 1 – General Requirements.
12. Verify that specified cleaning is done during progress of the work and at completion of project.
13. Start-up:
    a. Direct and checkout of utilities, operational systems and equipment.
    b. Assist in the initial start-up and testing.
    c. Record dates of start of operation of systems and equipment.
    d. Coordinate with Division 1 as to approved time to start warranty period for equipment put into service.
        1) Provide to **Owner** written notice of proposed beginning of warranty period for equipment put into service for review and subsequent approval.
14. Substantial Completion:
    a. Coordinate with Division 1 regarding approved process.
15. Final Completion:
    a. Coordinate with Division 1 regarding approved process.

PART 2 – **PRODUCTS**
Not Used

PART 3 – **EXECUTION**
Not Used

END OF SECTION 01 31 13

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SECTION 01 31 19 – PROJECT MEETINGS

PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. **General Contractor** shall schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout progress of the work, and will:

1. Prepare & distribute agenda to all participants 48 hours prior to scheduled meeting.
2. Distribute written notice of each meeting four days in advance of meeting date.
3. Make physical arrangements for meetings.
4. Preside at meetings.
5. Record the minutes; include significant proceedings and decisions.
6. Reproduce and distribute copies of minutes within two working days after each meeting and distribute to:

a. Participants in the meeting.
b. Parties affected by decisions made at meeting.
c. **Owner**
d. **Architect**

C. Representatives of **General Contractor**, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of entity each represents.

D. Project **Architect** and/or representative of **Architect** may/shall attend meetings called by **Owner** to ascertain that Work is expedited consistent with Contract Documents and construction schedules.

1.2 PRE-CONSTRUCTION MEETINGS

A. Timing: Within 14 days after date of Notice to Proceed.

B. Location: Central site, convenient for all parties, approved by **Owner**.

C. Attendance:

1. **Owner** representatives.
2. Project **Architect** and/or representatives and their professional consultants, at **Architect's** option.
3. **General Contractor's** Superintendent, Project Manager and Foreman.
4. Major Subcontractors.
5. Major suppliers.
6. Others as appropriate.

D. Suggested Agenda:

1. Use of Premises:

a. Site access
b. Site security
c. Site specific safety issues
d. Vehicular and pedestrian traffic
e. Emergency vehicle access (ambulance and fire)
f. Material delivery, staging/lay-down area(s)
g. Noise, dust control and SWPPP requirements
h. Other jurisdictional agency requirements
i. Hours of work
j. Project signage

2. Distribution of Project Directory including names, email addresses and phone numbers of all project participants.
3. Distribution of list of major subcontractors and suppliers.
4. Project Construction Schedule:

    a. Timing of submission of Construction Schedule updates.
    b. 3-week look-a-head schedule.

5. Scheduling of subsequent **Owner/Architect/General Contractor** meetings.
6. Review of all forms of "change" documentation:

    a. Clarification
    b. Request for Information (RFI).
    c. Cost Request Bulletin (CRB).
    d. Construction Change Directive (CCD).
    e. Change Order (CO).
    f. Etc.

7. Review of all form templates included in Specifications:

    a. Submittal Cover Sheet.
    b. DSA forms

8. Pay Application:

    a. Level of detail expected in the Schedule of Values to be included with each Pay Application.
    b. Timing for submission of "pencil draft" of Pay Application for preliminary review by Project Inspector, **Owner** Representative and **Architect**.

9. DSA Closeout process

    a. Required documentation to be provided to the **Architect** throughout the course of construction, (special inspection reports, weigh-master's certificates, prism test results, concrete mix designs, mill certificates etc.)
    b. Timing of the submission of DSA-6 forms (AFTER all Change Orders are approved)
    c. Recommendation of withholding of payments to ensure participation in DSA closeout process

10. Project Coordination

a. Critical work sequencing.
b. Major equipment deliveries and priorities.
c. Designation of responsible personnel.

11. Use of Newforma construction administration software:

a. Document routing protocols.
b. Submittal and RFI processes.
c. Information exchange website.

12. Distribution of Contract Documents.
13. Procedures for maintaining Record Documents.

1.3 PROGRESS MEETINGS AND SPECIALLY CALLED MEETINGS

A. **General Contractor** shall schedule regular periodic meetings, as required.

B. **Owner** or **Architect** may/shall hold specially called meetings as required by progress of work.

C. Location of meetings: Project field office of **General Contractor,** except as otherwise required.

D. Special technical meetings: Meetings will be held prior to beginning work under various technical specifications:

1. Called by **Owner** and/or **Architect** at their option.

E. Attendance:

1. **General Contractor's** project representative and job superintendent.
2. Project **Architect**, and their professional consultant as needed, at their option.
3. Subcontractors as appropriate to agenda.
4. Suppliers as appropriate to agenda.
5. Others.

F. Suggested Agenda:

1. Review and approval of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which impede Construction Schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to Construction Schedule.
8. Progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review bi-weekly email report from DSA Project Inspector

a. Tests & inspections
b. Field Trip Notes

c. Deviations or issues with construction

14. Review proposed changes for:

a. Effect on Construction Schedule and on completion date.
b. Effect on other contracts of Project.

15. Other business.

1.4 FINAL CLOSEOUT MEETING

A. Refer to Division 1 for protection and cleaning requirements.

PART 2 **- PRODUCTS**
Not Used

PART 3 **- EXECUTION**
Not Used

END OF SECTION 01 31 19

SECTION 01 32 16 – CONSTRUCTION PROGRESS SCHEDULE

PART 1 **- GENERAL**

1.1 DESCRIPTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Within fifteen (15) days after award of the Contract, submit to the **Architect** estimated construction progress schedule for the Work, with sub schedules of related activities essential to its progress. Submit revised progress schedules periodically, and with monthly Applications for Payment.

1.2 FORMAT

A. **Bar Chart or CPM Schedule**: Prepare Progress Schedule as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first work-day of each week or as a network analysis system using the critical path method, as outlined in The Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors".

B. **Sequence, Scale and Size**: Provide listing in the chronological order of the start of each item of Work. Prepare at a scale to provide space for notations and revisions. Make sheet size appropriate to the size of the project, in multiples of 8-1/2 x 11 inches.

1.3 CONTENT

A. **General**: Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction. Coordinate content with Schedule of Values specified in Division 1.

B. **Phases**: Identify work of separate stages and other logically grouped activities. Provide sub-schedules for each stage of Work as required in Division 1 summary of work. Provide sub-schedules to define critical portions of the entire Schedule.

C. **Items of Work**: Identify each item by specification Section number. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

D. **Required Submittals:** Provide separate schedule of submittal dates for shop drawings, product data, and samples, and dates reviewed submittals will be required from Architect/Engineer. Indicate decision date for selection of finishes or products.

1.4 REVISIONS TO SCHEDULES

A. Indicate progress of each activity to date of submittal, and projected completion date of each activity. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

PART 2 **- PRODUCTS**
Not Used

PART 3 - **EXECUTION**

3.1 Submittals: After review, resubmit required revised data within ten (10) days. Submit revised Progress Schedules with each Application for Payment. Provide the number of opaque reproductions which General Contractor requires, plus two (2) copies which will be retained by the Architect and Owner.

3.2 Distribution**:** Distribute copies of reviewed Schedules to project site file, Subcontractors, suppliers, and other concerned parties. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Schedules.

END OF SECTION 01 32 16

SECTION 01 33 00 - SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;

B. Special Conditions.

1.02 SECTION INCLUDES:

A. Definitions:

(1) Shop Drawings and Product Data are as indicated in the General Conditions and include, but are not limited to, fabrication, erection, layout and setting drawings, formwork and falsework drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams. In addition, there are other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment or systems and all positions conform to the requirement of the Contract Documents, including, without limitation, the Drawings.

(2) "Manufactured" applies to standard units usually mass-produced; "fabricated" means specifically assembled or made out of selected materials to meet design requirements. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicated proper relation to adjoining work and amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.

(3) Manufacturer's Instructions: Where any item of Work is required by the Contract Documents to be furnished, installed, or performed, at a minimum, in accordance with a specified product manufacturer's instructions, the Contractor shall procure and distribute copies of these to the District, the Architect, and all other concerned parties and shall furnish, install, or perform the work, at a minimum, in accordance with those instructions.

B. Samples, Shop Drawings, Product Data, and other items as specified, in accordance with the following requirements:

C. Contractor shall submit all Shop Drawings, Product Data, and Samples to the District, the Architect, the Project Inspector, and the Construction Manager.

(1) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.

(2) Contractor shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.

(3) Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.

(4) Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and "cuts" shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.

(5) When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.

(6) Contractor shall certify on submittals for review that submittals conform to Contract requirements. Also certify that Contractor- furnished equipment can be installed in allocated space. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Submittals shall not be used as a means of requesting a substitution.

(7) Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.

(8) Upon demand by Architect or District, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) 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 that are of value after testing will remain the property of Contractor.

D. Submittal Schedule:

E. Contractor shall prepare its proposed submittal schedule that is coordinated with the proposed construction schedule and submit both to the District within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the District.

(1) Contractor is responsible for all lost time should the initial submittal be rejected, marked "revise and resubmit", etc.

(2) All Submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those Submittals shall be forwarded to the District so as not to delay the Construction Schedule.

(3) Contractor may be assessed $100 a day for each day it is late in submitting a shop drawing or sample. No extensions of time will be granted to Trade Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule.

1.03 SHOP DRAWINGS:

A. Contractor shall submit one reproducible transparency and six (6) opaque reproductions. The District will review and return the reproducible copy and one (1) opaque reproduction to Contractor.

B. Before commencing installation of any Work, the Contractor shall submit and receive approval of all drawings, descriptive data, and material list(s) as required to accomplish Work.

C. Review of Shop Drawings is regarded as a service to assist Contractor and in all cases original Contract Documents shall take precedence as outlined under General Conditions.

D. No claim for extra time or payment shall be based on work shown on Shop Drawings unless the claim is (1) noted on Contractor's transmittal letter accompanying Shop Drawings and (2) Contractor has complied with all applicable provisions of the General Conditions, including, without limitation, provisions regarding changes and payment, and all required written approvals.

E. District shall not review Shop Drawings for quantities of materials or number of items supplied.

F. District's and/or Architect’s review of Shop Drawing will be general. District and/or Architect review does not relieve Contractor of responsibility for dimensions, accuracy, proper fitting, construction of Work, furnishing of materials, or Work required by

Contract Documents and not indicated on Shop Drawings. The District's and/or Architect's review of Shop Drawings is not to be construed as approving departures from Contract Documents.

G. Review of Shop Drawings and Schedules does not relieve Contractor from responsibility for any aspect of those Drawings or Schedules that is a violation of local, County, State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards, or other authorities or utilities having jurisdiction.

Before submitting Shop Drawings for review, Contractor shall check Shop Drawings of its subcontractors for accuracy, and confirm that all Work contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.

H. Submitted drawings and details must bear stamp of approval of Contractor:

(1) Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.

(2) If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the District and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.

I. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.

J. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the District, the Architect, the Project Inspector, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.

K. Shop Drawings must clearly delineate the following information:

(1) Project name and address.

(2) Specification number and description.

(3) Architect's name and project number.

(4) Shop Drawing title, number, date, and scale.

(5) Names of Contractor, Subcontractor(s) and fabricator.

(6) Working and erection dimensions.

(7) Arrangements and sectional views.

(8) Necessary details, including complete information for making connections with other Work.

(9) Kinds of materials and finishes.

(10) Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.

L. Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions.

(1) Shop Drawings shall consist of dimensioned plans and elevations and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.

(2) Contractor shall coordinate these composite Shop Drawings and installation layouts in the field between itself and its Subcontractor(s) for proper relationship to the Work, the work of other trades, and the field conditions. The Contractor shall check and approve all submittal(s) before submitting them for final review.

1.04 PRODUCT DATA OR NON REPRODUCIBLE SUBMITTALS:

A. Contractor shall submit manufacturer's printed literature in original form. Any fading type of reproduction will not be accepted. Contract must submit a minimum of six (6) each, to the District. District shall return one (1) to the Contractor, who shall reproduce whatever additional copies it requires for distribution.

B. Contractor shall submit six (6) copies of a complete list of all major items of mechanical, plumbing, and electrical equipment and materials in accordance with the approved Submittal Schedule, except as required earlier to comply with the approved Construction Schedule. Other items specified are to be submitted prior to commencing Work. Contractor shall submit items of like kind at one time in a neat and orderly manner. Partial lists will not be acceptable.

C. Submittals shall include manufacturer's specifications, physical dimensions, and ratings of all equipment. Contractor shall furnish performance curves for all pumps and fans. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on sheet and superfluous information shall be crossed out. If highlighting is used, Contractor shall mark all copies.

D. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and supplemental information that may be requested.

E. Imported Materials Certification must be submitted at least ten (10) days before material is delivered.

1.05 SAMPLES:

A. Contractor shall submit for approval Samples as required and within the time frame in the Contract Documents. Materials such as concrete, mortar, etc., which require on-site testing will be obtained from Project Site.

B. Contractor shall submit four (4) samples except where greater or lesser number is specifically required by Contract Documents including, without limitation, the Specifications.

(1) Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.

(2) Samples must show full range of texture, color, and pattern.

C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the District in writing to this effect.

D. Samples to be shipped prepaid or hand-delivered to the District.

E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.

F. Contractor shall not deliver any material to Site prior to receipt of District's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.

G. District's and/or Architect's review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final

acceptance of completed Work.

H. After a material has been approved, no change in brand or make will be permitted.

I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.

J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.

K. Field Samples and Mock-Ups are to be removed by Contractor at District's direction:

(1) Size: As Specified.

(2) Furnish catalog numbers and similar data, as requested.

1.06 REVIEW AND RESUBMISSION REQUIREMENTS:

A. The District will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty-one (21) days after receipt or within twenty- one (21) days after receipt of all related information necessary for such review, whichever is later.

B. One (1) copy of product or materials data will be returned to Contractor with the review status.

C. Samples to be incorporated into the Work will be returned to Contractor, together with a written notice designating the Sample with the appropriate review status and indicating errors discovered on review, if any. Other Samples will not be returned, but the same notice will be given with respect thereto, and that notice shall be considered a return of the Sample.

D. Contractor shall revise and resubmit any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) as required by the reviewer. Such resubmittals will be reviewed and returned in the same manner as original Sample(s), Shop Drawing(s), Product Data, and other submittal(s), within fourteen (14) days after receipt thereof or within fourteen (14) days after receipt of all related information necessary for such review. Such resubmittal shall not delay the Work.

E. Contractor may proceed with any of the Work covered by Sample(s), Shop Drawing(s), Product Data, and other submittal(s) upon its return if designated as no exception taken, or revise as noted, provided the Contractor proceeds in accordance with the District and/or the Architect's notes and comments.

F. Contractor shall not begin any of the work covered by a Sample(s), Shop Drawing(s), Product Data, and other submittal(s), designated as revise and resubmit or rejected, until a revision or correction thereof has been reviewed and returned to Contractor.

G. Sample(s), Shop Drawing(s), Product Data, and other submittal(s) designated as revise and resubmit or rejected and requiring resubmittal, shall be revised or corrected and resubmitted to the District no later than fourteen (14) days or a shorter period as required to comply with the approved Construction Schedule, after its return to Contractor.

H. Neither the review nor the lack of review of any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) shall waive any of the requirements of the Contract Documents, or relieve Contractor of any obligation thereunder.

I. District's and/or Architect's review of Shop Drawings does not relieve the Contractor of responsibility for any errors that may exist. Contractor is responsible for the dimensions and design of adequate connections and details and for satisfactory construction of all the Work.

PART 2 – PRODUCTS Not Used.

PART 3 -EXECUTION Not Used.

END OF DOCUMENT

SECTION 01 41 00 – REGULATORY REQUIREMENTS

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. This section and related attachments are for general use and specific use as herein indicated, as herein specified and as necessary to complete the work required by project conditions, including but not limited to:

1. References to:

a. Building Codes and Regulations.

1) All construction shall be in accordance with:

a) All applicable codes & all local regulations & local agencies having jurisdiction.
b) The Americans with Disabilities Act.
c) State and Federal Regulations and Agencies having jurisdiction.

C. The **General Contractor** shall obtain and maintain at the project site a copy of the referenced codes as deemed necessary to complete the work.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

1. Part 1 – California Administrative Code - (CAC)
2. Part 2 - Volume 1 & 2 - California Building Code – (CBC)
3. Part 3 – California Electrical Code – (CEC)
4. Part 4 – California Mechanical Code – (CMC)
5. Part 5 – California Plumbing Code – (CPC)
6. Part 6 – California Energy Code –(CEC)
7. Part 7 – (No longer published, refer to Title 8)
8. Part 8 – California Historical Building Code
9. Part 9 – California Fire Code (CFC)
10. Part 11 – California Green Building Standards Code
11. Part 12 – California Referenced Standards Code

B. Current California Code of Regulations (CCR), Office of Administrative Law www.oal.ca.gov/CCR.htm

1. Title 8, CCR, Industrial Regulations, Subchapter 6. Elevator Safety Orders
2. Title 19 CCR, Public Safety

C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

1.3 DATES OF CODES

A. Except where a specific date of issue is mentioned herein, references to specifications issued by the above named and other organizations shall mean the edition current on the date of the issuance of project permit.

1.4 MISCELLANEOUS REQUIREMENTS

A. OSHA Requirements

1. **General Contractor** must comply with all standards and requirements of the occupational safety and health administration.

a. Notify **Owner** immediately of items not complying.

PART 2 **- PRODUCTS**
Not used

PART 3 **- EXECUTION**
Not used

END OF SECTION 01 41 00

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SECTION 01 42 00 - REFERENCES

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. This section and related attachments are for general use and specific use as herein indicated as herein specified and as necessary to complete the work required by project conditions, including but not limited to:

1. References to:

a. Standards
b. Associations
c. Definitions
d. Abbreviations
e. Miscellaneous items are intended to provide a central location for reference.

1) This section shall provide assistance with definitions.

C. The **General Contractor** shall obtain and maintain at the project site a copy of the referenced standards as deemed necessary to complete the work.

1.2 REFERENCE STANDARDS

A. Refer to Section 01 41 00 – Regulatory Requirements

1.3 ASSOCIATIONS

A. Associations shall include, but not be limited to:

1.	AA	Aluminum Association www.aluminum.org
2.	AABC	Associated Air Balance Council
3.	AAC	Aluminum Anodizers Council
4.	AAMA	American Architectural Manufacturers Association www.aamanet.org
5.	AAN	American Association of Nurserymen
6.	AASHTO	American Association of State Highway and Transportation Officials www.transportation.org
7.	AATCC	American Association of Textile Chemists and Colorists
8.	AAU	Amateur Athletic Union
9.	ABMA	American Boiler Manufacturers Association www.abma.com
10.	ACIL	American Council of Independent Laboratories
11.	ACPA	American Concrete Pipe Association
12.	ADA/ ADAAG	Americans with Disabilities www.usdoj.gov/crt/ada/adahom1.htm Act Accessibility Guidelines www.access-board.gov
13.	ADC	Air Diffusion Council
14.	AFPA	American Forest and Paper Association

15.	AGA	American Gas Association www.aga.org
16.	AGC	Associated General Contractors of America www.agc.org
17.	AGMA	American Gear Manufacturers Association www.agma.org
18.	AHA	American Hardboard Association
19.	ACI	American Concrete Institute www.aci-int.org
20.	AHAM	Association of Home Appliance Manufacturers
21.	AI	Asphalt Institute
22.	AIA	American Institute of Architects www.aia.org
23.	AIHA	American Industrial Hygiene Association
24.	AIMA	Acoustical and Insulating Materials Association
25.	AISC	American Institute of Steel Construction www.aisc.org
26.	AISI	American Iron and Steel Institute www.**steel**.org
27.	AITC	American Institute of Timber Construction
28.	ALI	Associated Laboratories, Inc.
29.	ALSC	American Lumber Standards Committee
30.	AMCA	Air Movement and Control Association
31.	ANSI	American National Standards Institute www.ansi.org
32.	AOSA	Association of Official Seed Analysts
33.	APA	American Plywood Association www.apawood.org
34.	API	American Petroleum Institute www.api.org
35.	APWA	American Public Works Association www.apwa.net
36.	ARI	Air-Conditioning and Refrigeration Institute
37.	ARMA	Asphalt Roofing Manufacturers Association
38.	ASA	Acoustical Society of America www.asa.aip.org
39.	ASC	Adhesive and Sealant Council
40.	ASCE	American Society of Civil Engineers www.asce.org
41.	ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers www.ashrae.org
42.	ASME	American Society of Mechanical Engineers(ASME), www.asme.org
43.	ASPA	American Sod Producers Association (ASPA)
44.	ASPE	American Society of Plumbing Engineers (ASPE), www.aspe.org
45.	ASSE	American Society of Sanitary Engineering (ASSE), www.asse- plumbing.org
46.	ASTM	American Society For Testing & Materials www.astm.org
47.	ATIS	Alliance for Telecommunications Industry Solutions
48.	AWG	American Wire Gage
49.	AWI	Architectural Woodwork Institute www.awinet.org
50.	AWPB	American Wood Preservers Bureau www.awpa.com
51.	AWS	American Welding Society www.aws.org
52.	AWWA	American Water-Works Association www.awwa.org
53.	AWPA	American Wood Protection Association
54.	AWPI	American Wood Preservers Institute www.awpai.com
55.	BHMA	Builder's Hardware Manufacturers Association www.buildershardware.com
56.	BIA	Brick Industry Association
57.	BIFMA	The Business and Institutional Furniture Manufacturer's Association
58.	BSI	Building Stone Institute

59.	CAGI	Compressed Air and Gas Institute
60.	CALTrans	State of California, Department of Transportation
61.	CAUS	Color Association of the United States
62.	CBHF	Bureau of Home Furnishings and Thermal Insulation, State of California, Dept. of Consumer Affairs
63.	CBSC	California Building Standards Commission (California Code of Regulations, Title 24) www.bsc.ca.gov
64.	CBM	Certified Ballast Manufactures
65.	CCC	Carpet Cushion Council
66.	CCMTC	California Concrete Masonry Technical Committee
67.	CDA	Copper Development Association
68.	CFFA	Chemical Fabrics and Film Association, Inc.
69.	CGA	Compressed Gas Association
70.	CISCA	Ceilings & Interior Systems Construction Association www.cisca.org
71.	CISPI	Cast Iron Soil Pipe Institute
72.	CLFMI	Chain Link Fence Manufacturing Institute
73.	CPSC	Consumer Product Safety Commission
74.	CRA	California Redwood Association www.calredwood.org
75.	CRI	Carpet and Rug Institute
76.	CRSI	Concrete Reinforcing Steel Institute www.crsi.org
77.	CS	Commercial Standard
78.	CSA	Canadian Standards Association
79.	CSI	Construction Specifications Institute www.csinet.org
80.	CSSB	Cedar Shingle and Shake Bureau
81.	CTI	Ceramic Tile Institute www.ctioa.org
82.	DFPA	Douglas Fir Plywood Association now known as American Plywood Association www.apawood.org
83.	DHI	Door Hardware Institute
84.	DIPRA	Ductile Iron Pipe Research Association
85.	DLPA	Decorative Laminate Products Association
86.	DSA	Division of the State Architect www.dsa.ca.gov
87.	EIA	Electronic Industries Association
88.	EIMAEIFS	Industry Manufacturers Association
89.	EJMA	Expansion Joint Manufacturers Association
90.	ETL	Electrical Testing Laboratory
91.	FCI	Fluid Controls Institute
92.	FCICA	Floor Covering Installation Contractors Association
93.	FGMA	Flat Glass Marketing Association
94.	FM	Factory Mutual Research Corporation www.fmglobal.com
95.	FS	Federal Specifications www.fss.gsa.gov/pub/fedspecs/search.cfm
96.	FSC	Forest Stewardship Council
97.	FTI	Facing Tile Institute
98.	GA	Gypsum Association
99.	GANA	Glass Association of North America
100.	GIS	Germany Institute for Standardization
101.	HEI	Heat Exchange Institute

102.	HI	Hydronics Institute
103.	HMA	Hardwood Manufacturers Association
104.	HMMA	Hollow Metal Manufacturers Association (Division of NAAMM) www.naamm.org/hmma
105.	HPVA	Hardwood Plywood and Veneer Association
106.	HUD	U.S. Dept of Housing and Urban Development
107.	IAPMO	International Association of Plumbing and Mechanical Officials
108.	IBD	Institute of Business Designers
109.	ICC	International Code Council www.iccsafe.org
110.	ICC-ES	International Code Council Evaluation Service
111.	ICEA	Insulated Cable Engineers Association
112.	ICBO	International Conference of Building Officials www.iccsafe.org
113.	ICRI	International Concrete Repair Institute www.icri.org
114.	IEC	International Electro-technical Commission
115.	IEEE	Institute of Electrical and Electronics Engineers www.ieee.org
116.	IESNA	Illuminating Engineering Society of North America www.iesna.org
117.	IFAI	Industrial Fabrics Association International
118.	IGCC	Insulating Glass Certification Council
119.	ILI	Indiana Limestone Institute of America
120.	IMIAC	International Masonry Industry All-Weather Council
121.	IMSA	International Municipal Signal Association
122.	IPCEA	Insulated Power Cable Engineers Association www.icea.net
123.	IPEMA	International Play Equipment Manufacturers Association
124.	IRI	Industrial Risk Insurers
125.	ISA	Instrument Society for Measurement and Control
126.	ISO	International Standards Organization
127.	JICS	Joint Industry Conference Standards
128.	KCMA	Kitchen Cabinet Manufacturers Association
129.	LEED	Leadership in Energy and Environmental Design www.usgbc.org/LEED
130.	LIA	Lead Industries Association, Inc.
131.	LPI	Lightning Protection Institute
132.	LSGA	Laminators Safety Glass Association
133.	MBMA	Metal Building Manufacturers Association www.mbma.com
134.	MCAA	Mechanical Contractors Association of America
135.	MFMA	Maple Flooring Manufacturers Association
136.	MIA	Marble Institute of America
137.	ML/SFA	Metal Lath/Steel Framing Association (Division of NAAMM)
138.	MMSA	Materials and Methods Standards Association
139.	MSS	Manufacturer's Standardization Society of the Valve and Fitting Industry www.mss-hq.org
140.	NAA	National Arborist Association
141.	NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org
142.	NAIMA	North American Insulation Manufacturers Association
143.	NAPA	National Asphalt Pavement Association
144.	NBFU	National Board of Fire Underwriters (American Insurance Assn.) www.nbfu.com

145.	NCAA	National Collegiate Athletic Association
146.	NCCA	National Coil Coaters Association www.coilcoating.org
147.	NCMA	National Concrete Masonry Association
148.	NCPI	National Clay Pipe Institute
149.	NCRPM	National Council on Radiation Protection and Measurements
150.	NCSBCS	National Conference of States on Building Codes and Standards www.NCSBCS.org
151.	NCSPA	National Corrugated Steel Pipe Association
152.	NECA	National Electrical Contractors Association
153.	NEI	National Elevator Industry, Inc. www.neii.org
154.	NEMA	National Electrical Manufacturers Association www.nema.org
155.	NES	National Evaluation Service www.icc-es.org
156.	NETA	International Electrical Testing Association
157.	NFPA	National Fire Protection Agency www.nfpa.org
158.	NHLA	National Hardwood Lumber Association
159.	NISD	National Institute of Steel Detailing www.nisd.org
160.	NIST	National Institute of Standards and Technology
161.	NLGA	National Lumber Grades Authority
162.	NOFMA	National Oak Flooring Manufacturers Association
163.	NOMMA	National Ornamental and Miscellaneous Metals Association
164.	NPA	National Particleboard Association
165.	NPCA	National Paint and Coatings Association
166.	NRB	National Research Board, Council Of American Building Officials
167.	NRCA	National Roofing contractors Association
168.	NRMCA	National Ready-Mix Concrete Association
169.	NSF	National Sanitation Foundation www.nsf.org
170.	NSSEA	National School Supply and Equipment Association
171.	NSWMA	National Sanitation and Waste Management Association
172.	NTMA	National Terrazzo and Mosaic Association
173.	NWWDA	National Wood Window and Door Association
174.	OSHA	Occupational Safety and Health Administration www.osha.gov
175.	OSHPD	Office of Statewide Health Planning and Development
176.	PATMI	Power Actuated Tool Manufacturer's Institute, Inc.
177.	PCA	Portland Cement Association www.cement.org
178.	PCI	Pre-stressed Concrete Institute www.pci.org
179.	PDCA	Painting and Decorating Contractors of America
180.	PDI	Plumbing and Drainage Institute
181.	PEI	Porcelain Enamel Institute
182.	PS	Product Standard of National Bureau of Standards
183.	RFCI	Resilient Floor Covering Institute
184.	RIS	Redwood Inspection Service
185.	RMA	Rubber Manufacturers Association
186.	SAMA	Scientific Apparatus Makers Association
187.	SDI	Steel Deck Institute
188.	SIGMA	Sealed Insulating Glass Manufacturers Association
189.	SFM	State Fire Marshal

190.	SGCC	Safety Glazing Certification Council
191.	SJI	Steel Joist Institute
192.	SMA	Screen Manufacturers Association
193.	SMA	Stucco Manufacturers Association
194.	SMACNA	Sheet Metal and Air Conditioning Contractors, Association www.smacna.org
195.	SPIB	Southern Pine Inspection Bureau
196.	SPR	Simplified Practice Recommendation
197.	SPRI	Single-Ply Roofing Institute
198.	SSMA	Steel Stud Manufacturers Association www.ssma.com
199.	SSPC	Steel Structures Painting Council www.sspc.org
200.	SSPMA	Sump and Sewage Pump Manufacturers Association
201.	STI	Steel Tank Institute
202.	SWI	Steel Window Institute
203.	SWPA	Submersible Wastewater Pump Association
204.	SWRI	Sealant, Waterproofing and Restoration Institute www.swrionline.org
205.	SWRCB	California Environmental Protection Agency, State Water Resources Control Board Water Quality (Stormwater Prevention Plan)
206.	TCNA	The Tile Council of North America, Inc. www.tileusa.com
207.	TIMA	Thermal Insulation Manufacturers Association
208.	TPI	Truss Plate Institute
209.	UL	Underwriters Laboratories, Inc. www.ul.com
210.	UNI	Uni-Bel PVC Pipe Association
211.	USGBC	United States Green Build Council
212.	USP	United States Pharmacopoeial Convention
213.	USPHS	United States Public Health Service www.usphs.gov
214.	USDA	United States Department of Agriculture
215.	USTC & TBA	United States Tennis Court and Track Builders Association
216.	VWDI	Vinyl Window and Door Institute
217.	WA	Wall Coverings Associations
218.	WCLIB	West Coast Lumber Inspection Bureau www.wclib.com
219.	WCMA	Window Covering Manufacturers Association
220.	WCRSI	Western Concrete Reinforcing Steel Institute
221.	WH	Warnock Hersey International, Inc.
222.	WI	Woodwork Institute
223.	WLPDIA	Western Lath, Plaster, Drywall Industries Association
224.	WPS	Welding Procedures Specifications
225.	WRI	Wire Reinforcement Institute
226.	WSC	Water Systems Council
227.	WSFI	Wood and Synthetic Flooring Institute
228.	WWPA	Western Woods Product Association www.wwpa.org
229.	W.I.	Woodwork Institute Manual of Millwork www.woodworkinstitute.com

1.4 DATES OF STANDARDS

A. Except where a specific date of issue is mentioned herein, references to specifications issued by the above named and other organizations shall mean the edition current on the date of the issuance of project permit.

1.5 DEFINITIONS

A. The following are used in specifications and documents in addition to Division 1 as herein defined:

1. Accepted Equal or Accepted Equivalent:

   a. Reviewed and accepted by the **Architect** as being equal in quality, utility and appearance and within the Design Intent of the documents, but shall not in any way change or delete the original intent of the documents.

2. Approved:

   a. As accepted by the **Architect**, (shop drawings & Submittals shall be reviewed for design intent but shall not be approved.

      1. Does not include review for items changed but not specifically noted by **Contractor**.

3. Approved Equal / Approved Equivalent:

   a. As accepted by the **Architect**, (shop drawings & Submittals shall be reviewed for design intent but shall not be approved.

      1. Does not include review for items changed but not specifically noted by **Contractor**.

4. As Required:

   a. As required by referenced standards, existing project conditions, Contract Documents or regulatory requirements.

5. Directed:

   a. As instructed by the **Architect** and/or **Owner** in writing.

6. Documents:

   a. Includes:

      1. Drawings
      2. Project Manual/Specifications
      3. Owner/Contractor Contract
      4. Addendums
      5. Supplemental Documents in accordance with project manual / specifications.

7. Drawings:

   a. Drawn representation of the scope of work.

8. Furnish (materials):

   a. To supply and deliver to the project site in new condition ready for installation and in operable and new condition.

9. Geotechnical Engineer

   a. A **Civil** or **Geotechnical Engineer** licensed in the State of California, who is retained and paid by the **Owner** to perform services as specified in the Contract Documents.

10. Indicated:

a. As shown, noted on the drawings and/or specifications or scheduled in the drawings.

11. Install (service or labor):

    a. Anchor, fabricate, connect and/or fasten in place and adjust for use and/or place or apply in proper position & location and/or establish in place for use or service.
    b. To place in final position, complete, anchored, connected, and in operable condition with respect to required codes and/or governing agency requirements.

12. Project Manual:

    a. Is the volume which includes the; Bidding Requirements, Contract Forms, Conditions of the Contract and the Specifications.

13. Provide:

    a. To furnish, install and fabricate complete.

14. Shall:

    a. To be construed as 'mandatory'.

15. Site:

    a. Area to be occupied by the Project.
    b. Any portion directly outside exterior face of exterior walls.

16. Similar:

    a. Shall be interpreted in its general sense and not as necessarily meaning identical, and all details shall be worked out in relationship to their location and to their connection with other parts of the work.

17. Owner:

    a. The Owner of the project, or their authorized agent / on-site representative.

18. Testing Agency:

    a. An organization other than the Testing Laboratory retained and paid by the **Contractor** to perform tests and reports on whether or not designated items of Work comply with the requirements of the Contract Documents.

19. Testing Laboratory:

    a. An independent commercial testing organization, retained and paid by the **Owner** to perform tests and report on Work as specified in the Contract Documents, and as otherwise required.

        1. **General Contractor** shall pay for Testing when they have not provided the appropriate time prior to testing being required to be done.

1.6 ABBREVIATIONS

A. The following is a reference list including basic abbreviations included in Project manual and/or drawings including, but not limited to;

    1. Refer also to drawings and individual specifications for additional abbreviations.

&	and
L	Angle
@	at
CL	Centerline
Ø	Diameter
#	Number
(E)	Existing
(F)	Future
(N)	New
ACOUST	Acoustical
ACP	Asphalt Concrete Paving
ADA	Americans with Disabilities Act
ADDL	Additional
ADO	Automatic Door Opener
ADJ	Adjustable
A.F.F.	Above Finish Floor
A.F.G.	Above Finish Grade
AGGR	Aggregate
ALUM	Aluminum
APPROX	Approximate
ARCH	Architectural
ASSY	Assembly
AV	Audio Visual
BD	Board
BITUM	Bituminous
BKG	Backing
BLDG	Building
BLKG	Blocking
BM	Beam
BMP	Best Management Practices
B.O.	Bottom of / Back of
BR	Backer Rod
BTWN	Between
CAB	Cabinet
CASAM	Cold Applied Self Adhering Waterproof Membrane
CBC	California Building Code
CFCI	Contractor Furnished Contractor Installed
CFOI	Contractor Furnished Owner Installed
CJ	Control Joint
CLG	Ceiling
CLR	Clear

CMU	Concrete Masonry Unit
CNTR	Counter
C.O.	Cased Opening
COL	Column
CONC	Concrete
CONT	Continuous
CORR	Corridor
CR	Card Reader
CTR	Center
CTSK	Countersunk
CUST	Custodial
CW	Cold Water
DBL	Double
DEG	Degree
DEPT	Department
DF	Drinking Fountain
DIA	Diameter
DIM	Dimension
DISP	Dispenser
DN	Down
D.O.	Door Opening
DR	Door
DS	Downspout
DTL	Detail
DWG	Drawing
E	East
EA	Each
EJ	Expansion Joint
EL	Elevation
ELEC	Electrical
ELEV	Elevator
EMER	Emergency
ENCL	Enclosure
EQ	Equal
EQUIP	Equipment
ETC	Et Cetera
EW	Each Way
EXP	Expansion
EXT	Exterior
FA	Fire Alarm
FD	Floor Drain

FND	Foundation
FE	Fire Extinguisher and Bracket Mount with Signage
FEF	Fire Extinguisher and Fully Recessed Cabinet with Signage
FES	Fire Extinguisher and Semi- Recessed Cabinet with Signage
F.F.	Finish Floor
FIN	Finish
FHC	Fire Hose Cabinet
FLG	Flooring
FLR	Floor
FM	Floor Mounted
F.O.	Face of
FRP	Fiber Reinforced Plastic
FT	Foot or Feet
FTG	Footing
FURR	Furring
FURN	Furniture
GA	Gauge
GALV	Galvanized
GC	General Contractor
GD	Garbage Disposal
GLB	Glue Laminated Beam
GR	Grade
GSM	Galvanized Sheet Metal
GYP	Gypsum
HB	Hose Bibb
HC	Hollow Core
HDWR	Hardware
HT	Height
HM	Hollow Metal
HOR	Horizontal
HVAC	Heating, Ventilating, and Air Conditioning
I.D.	Inside Diameter
i.e.	Example
INSUL	Insulation
INT	Interior
IOR	Inspector of Record
IT	Information Technology

JT	Joint
KIT	Kitchen
LAB	Laboratory
LAM	Laminate
LAV	Lavatory
LT	Light / Lighting
LTWT	Lightweight
LVL	Laminated Veneer Lumber
MATL	Material
MAX	Maximum
MECH	Mechanical
MFGR	Manufacturer
MIN	Minimum
MISC	Miscellaneous
M.O.	Masonry Opening
MTD	Mounted
MTL	Metal
N	North
N/A	Not Applicable
NIC	Not in Contract
NOM	Nominal
NTS	Not To Scale
O/	Over
O.C.	On Center
O.D.	Outside Diameter
OF	Overflow
OFCI	Owner Furnished Contractor Installed
OFOI	Owner Furnished Owner Installed
OPNG	Opening
OPP	Opposite
PLAM	Plastic Laminate
PL	Plate
PLYWD	Plywood
PR	Pair
PROP	Property
PSF	Pounds per Square Foot
PSI	Pounds per Square Inch
PSL	Parallel Strand Lumber

PT	Pressure Treated
PV	Photovoltaic
RAD	Radius
RD	Roof Drain
REF	Reference
REFR	Refrigerator
REINF	Reinforcement/Reinforcing
REQD	Required
RM	Room
R.O.	Rough Opening
RWL	Rain Water Leader
S	South
SAABM	Spray Applied Air Barrier Membrane
SCHED	Schedule
SF	Square Foot/Feet
SHTG	Sheathing
SHWR	Shower
SIM	Similar
SMS	Sheet Metal Screws
SPEC	Specification
SS	Stainless Steel
STD	Standard
STL	Steel
STOR	Storage
STRL	Structural
T	Tread
TBD	To Be Determined
TEL	Telephone
TEMP	Temporary
T&G	Tongue and Groove
T.O.	Top of
TS	Tube Steel
TV	Television
TYP	Typical
UC	Under Counter
UL	Underwriters Laboratory
UON	Unless Otherwise Noted
VERT	Vertical
VEST	Vestibule

VIF	Verify in Field
W	West
W/	With
WC	Water Closet
WDW	Window
WH	Water Heater
W.O.	Where Occurs
W/O	With Out
WRB	Water Resistant Barrier
WT	Weight

1.7 MISCELLANEOUS REQUIREMENTS

A. Prior Use or Occupancy

1. Refer to Division 1 for closeout submittal procedures.

B. Lines &Levels

1. Before starting work, locate all general reference points.
    a. Take such steps as are necessary to prevent their dislocations or destruction.
    b. If disturbed or destroyed, replace as directed.
    c. Employ competent surveyor to lay out work; be responsible for its accuracy.

C. As-Built – Record Drawings

1. Scope of contractors responsibilities, refer to, but not limited to:
    a. Individual specification sections.
    b. Division 1 – General Requirements
    c. Refer to Division 1 for substitution, deviation and/or submittal procedures.
    d. Refer to Division 1 for closeout submittal procedures.

D. Workmanship

1. Refer to individual specification sections
2. Refer to Division 1 general requirements
3. Refer to Division 1 for quality control requirements.
4. All work involved in this project shall reflect the best possible workmanship.
    a. Any work which is not of the best workmanship shall be corrected or redone as is required for approval by the **Architect**, at no additional cost to the **Owner**.
5. No trade should apply any finishes or materials to any surfaces until they feel that the surfaces are ready to receive the finish or material and produce the best possible workmanship.
    a. Any trade who does apply the finish or materials to surfaces that are not ready shall remove and correct their work as well as prepare the existing surfaces involved at no additional cost to the **Owner**.

E. Vendor and Sub-Contractors

1. **General Contractor** shall provide **Architect** with a complete list of subcontractors and principal vendors including addresses and telephone numbers. List each under heading of subcontractor category and/or vendor type.
2. The **General Contractor** is responsible for determination and coordination of union and/or non-union project affiliation.
    a. **General Contractor** shall prepare and adhere to the Contract Construction Schedule based on required Contract time of completion. In the event of termination by parties hereto, all work performed and materials furnished shall be fairly allocated and apportioned in accordance with good construction practices.

F. Termination by **Owner**

1. Refer to but not limited to; General Conditions.

G. Warranties:

1. Refer to individual specification sections.
2. Refer to Division 1 for closeout submittal procedures.

H. Maintenance Manuals:

1. Refer to individual specification sections.
2. Refer to Division 1 for closeout submittal procedures.

I. Other items not herein listed;

1. Refer to but not limited to:
    a. Refer to Division 1 for closeout submittal procedures.

PART 2 **- PRODUCTS**
Not used

PART 3 **- EXECUTION**
Not used

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SECTION 01 45 00 - QUALITY CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Inspector, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;

B. Special Conditions.

1.02 RELATED CODES:

A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.

B. The Division of the State Architect ("DSA") shall be notified at or before the start of construction.

1.03 OBSERVATION AND SUPERVISION:

A. The District and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Civil Engineer will be in accordance with applicable regulations, including, without limitation, CCR, Part 1, Title 24, Section 4-341.

B. One or more Project Inspector(s) approved by DSA and employed by or in contract with the District, referred to hereinafter as the "Project Inspector", will observe the work in accordance with CCR, Part 1, Title 24, Sections 4- 333(b) and 4-342:

(1) The Project Inspector and Special Inspector(s) shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and operation of equipment as needed, and access as required and shall provide assistance for sampling or measuring materials.

(2) The Project Inspector will notify the District and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.

C. The Project Inspector shall observe and monitor all testing and inspection activities require

The Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to CCR, Part 1, Title 24, Section 4-343. The Contractor shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The Contractor's superintendent shall also inspect all materials, as they arrive, for compliance with the Contract Documents. Contractor shall reject defective Work or materials immediately upon delivery or failure of the Work or material to comply with the Contract Documents. The Contractor shall submit verified reports as indicated in the Contract Documents, including, without limitation, the Specifications and as required by Part 1, Title 24, Section 4-336.

1.04 TESTING AGENCIES:

A. Testing agencies and tests shall be in conformance with the General Documents and the requirements of Part 1, Title 24, Section 4- 335.

B. Testing and inspection in connection with earthwork shall be under the direction of the District's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer."

C. Testing and inspection of soil compaction, field drainage, fencing, and scoreboard installation inspections shall be performed by a qualified laboratory, referred to hereinafter as the "Testing Laboratory." The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the District.

1.05 TESTS AND INSPECTIONS:

A. The Contractor shall be responsible for notifying the District and Project Inspector of all required tests and inspections. Contractor shall notify the District and Project Inspector at least seventy-two hours (72) hours in advance of performing any Work requiring testing or inspection.

B. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.

C. The District will pay for first inspections and tests required by the "CCR", and other inspections or tests that the District and/or the Architect may direct to have made, including the following principal items:

(1) Tests and observations for earthwork and paving.

(2) Additional tests directed by the District that establish that materials and installation comply with the Contract Documents.

(3) Tests and observations of welding and expansion anchors.

D. The District may at its discretion, pay and then back charge the Contractor for:

(1) Retests or reinspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.

(2) Uncovering of work in accordance with Contract Documents.

(3) Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.

(4) Testing done off Site.

E. Testing and inspection reports and certifications:

(1) If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.

(a) The District;

(b) The Construction Manager, if any;

(c) The Architect;

(d) The Consulting Engineer, if any;

(e) Other engineers on the Project, as appropriate;

(f) The Project Inspector; and

(g) The Contractor.

(2) When the test or inspection is one required by the CCR, a copy of the report shall also be provided to the DSA.

PART 2 - PRODUCTS

2.01 TYPE OF TESTS AND INSPECTIONS

A. Testing and inspection shall be in accordance with DSA Form 103 (or current version)

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

SECTION 01 45 29 – TESTING LABORATORY SERVICES

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION:

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with **General Contractor**.

C. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. Field inspections.
2. Field testing.
3. Laboratory testing.

D. **Owner** will employ and pay for services of an independent testing laboratory to perform specified testing unless otherwise specified to be performed and/or paid for by others.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. (CCR) Title 24, (CBSC) Chapter 11 – California Green Building Standards Code

1. Non-residential new construction:

a. All occupancy types.

C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:

1. Comply with Building Code.
2. Job site inspections shall be done as herein specified.
3. Testing shall be done as herein specified.
4. Comply with requirements of specific Specification Section and/or Drawings.

1.4 SUBMITTALS

A. Testing Agent / Agency shall submit schedule list of all testing to **Owner**, **Architect and General Contractor**.

1.5 QUALITY ASSURANCE

A. Refer to Section 01 45 00 - Quality Control.

B. Testing Agent/Agency shall have been in business for **five (5)** years providing inspection services for projects of similar size and complexity.

C. Laboratory is not authorized to release, revoke, alter or enlarge on requirements of Contract Documents, or to perform any duties of **General Contractor** and/or Subcontractors.

1.6 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.

1.7 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to the following:

1. Construction by others.
2. Site demolition by others.
3. Testing by **General Contractor**.
4. Inspections by product/system manufacturers.

B. Related Sections include, but are not limited to the following:

1. Section 01 45 00 – Quality Control
2. Section 01 74 19 – Construction Waste Management and Disposal/Recycling
3. Section 01 81 13 – Project Sustainability Requirements

C. Related Documents include, but are not limited to the following:

1. Section 00 72 13 – General Conditions

1.8 SEQUENCING AND SCHEDULING

A. Schedule testing with **General Contractor**.

B. Schedule required testing, prior to the installation of materials, components, etc.

C. **General Contractor's** Responsibilities

1. Refer to Section 01 45 00 Quality Control.

1.9 TESTING AGENT

A. Company: TBD

1. Address: TBD
2. Address: TBD
3. Website: TBD
4. Phone number: TBD

B. The **Owner** reserves the right to change testing laboratories if the need arises.

1.10 GENERAL SYSTEM DESCRIPTION

A. Testing and inspection performed by Testing Agent/Agency shall include, but not be limited to:

1. Refer to drawings and specifications.
2. Refer to Agency approved Special Testing and Inspections form.

3. Refer to Geotechnical Report

PART 2 **- PRODUCTS:**
Not Used

PART 3 **- EXECUTION**

3.1 INSPECTION/EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions under which testing and inspection is to be performed.
2. Identify conditions detrimental to proper or timely completion of testing and/or inspection and coordinate with **General Contractor** to rectify.

3.2 COORDINATION

A. Refer to Section 01 31 13 – Project Coordination.

B. **General Contractor** shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades is ready for testing and/or inspection.

3.3 TESTING

A. General

1. Testing required by **General Contractor** shall be done in accordance with Section 01 45 00 - Quality Control and specific sections requiring field testing and/or inspection.
2. Testing and inspection in connection with earthwork shall be under the direction of the **Owner's** consulting Geotechnical Engineer, referred to hereinafter as the "Geotechnical Engineer".
3. Testing and inspection of construction materials and workmanship shall be done by a qualified laboratory, referred to hereinafter as the "Testing Laboratory".

a. The Testing Laboratory shall be under direction of a Civil Engineer registered in the State of California to oversee the work / items being tested and shall conform to, and shall be employed by the **Owner**.

B. Laboratory Duties:

1. General: Cooperate with **Architect**, **Engineer** and **Contractor**; provide qualified personnel after due notice. Perform specified inspections, sampling and testing of materials and methods of construction. Verify compliance with specified standards. Ascertain compliance of specified materials with requirements of Contract Documents. Promptly inform **Architect** and **Engineer** of observed irregularities or deficiencies of work or products.
2. Reports and Additional Testing:

a. Submit one (1) pdf copies of each report each to the **Owner**, **Architect** and **General Contractor**.

C. Testing Laboratory:

1. Services of a **Testing Agent / Agency** are required for Work specified in various individual Specification sections and/or as indicated in drawings.
2. **General Contractor's** Responsibilities:
    a. Cooperate with Testing Laboratory personnel.
    b. Furnish copies of product test reports as specified.
    c. Furnish incidental labor and facilities:
        1) To provide access to Work to be tested.
        2) To obtain and handle samples at the Project site or at the source of the product to be tested.
        3) To facilitate inspections and tests.
        4) For storage and curing of test samples.
    d. Notify the **Owner's** Representative sufficiently in advance of operations to allow 48 hours minimum for Testing Laboratory assignment of personnel and scheduling of tests.
    e. If tests or inspections cannot be performed after such notice, reimburse the **Owner** for the Testing Laboratory personnel and travel expenses incurred.

D. Geotechnical Engineer:

1. Services of a Geotechnical Engineer are required for Work specified in various individual specification sections and/or as indicated in drawings.

3.4 PROTECTION AND CLEAN UP

A. Refer to Section 01 74 00 – Protection and Cleaning.

B. Testing agent/Agency shall keep the work areas in a clean and safe condition, so their testing and inspection services do not interfere with the work of others.

C. Testing agent/Agency shall protect work and materials of others testing and protect the installed work and materials of other trades.

D. Perform testing in accordance with listed requirements, industry standards and also as indicated in drawings and other specification sections.

E. In the event of damage, immediately notify the **Owner**.

F. After completion of testing and/or inspection remove all equipment and implements of service, and debris.

1. Leave entire area in a neat, clean, acceptable condition.

END OF SECTION 01 45 29

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 **- GENERAL**

1.1 WORK INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 General Requirements apply to the work of this Section.

B. The **General Contractor** is responsible for all costs associated with temporary utilities during construction.

C. Temporary facilities and controls required for this Work include, but are not necessarily limited to:

1. Temporary utilities including, but not limited to;
    a. Gas
    b. Water
    c. Electricity
    d. Telephone
2. Field office.
3. Sanitary facilities.
4. Fencing of construction area.
5. Protective fencing for existing vegetation
6. Parking of vehicles.
7. Egress plan.

PART 2 **- PRODUCTS**

2.1 TEMPORARY UTILITIES

A. General: Furnish water, gas and electricity required during construction and extend temporary service lines to construction areas for use of all Subcontractors.

B. Temporary water:

1. **General Contractor** may connect a temporary line to the existing water service lines at the site.
2. The **General Contractor** shall be responsible to verify all existing conditions associated with a water connection.
3. Connections to existing water service lines shall be coordinated with and accepted by the Project Inspector.
4. Water used in construction must comply with Section 16 of the Standard Construction Specifications.
5. Provide ample supply of potable water for all purposes of construction at point convenient to Project. Pipe water from source of supply to all points where water will be required.
6. Provide sufficient hose to carry water to every required part of construction and allow use of water facilities to Subcontractors engaged on Work.

C. Temporary electricity:

1. The **General Contractor** shall arrange for and shall install power service from electrical service provider service lines, or shall provide a portable generator.
2. Electric service: Construct all temporary electric facilities and maintain in accordance with Division of Industrial Safety "Electrical Safety Orders" (ESO), Public Utilities Commission "Rules of Overhead Line Construction" (G.O. 95), and CAL-OSHA. Materials, devices and equipment used for these facilities shall be in good and safe condition but need not be new.

D. Telephone:

1. Maintain telephone in field office for use by **Architect** and **Owner** as well as **General Contractor**.
2. Provide and pay for telephone installation and service for field office. Maintain service for duration of operations under this Contract. Provide gongs, horns or remote control devices so that telephones may be heard throughout construction site.
3. **General Contractor** shall not have access to phones on site and therefore, shall arrange for their own pager or portable phone if needed for on-site communication.

E. Fax Machine:

1. Maintain fax machine in field office for use by **Architect** and **Owner** as well as **General Contractor**.
2. Provide and pay for fax machine telephone service installation and service for field office. Maintain service for duration of operations under this Contract. Provide gongs, horns or remote control devices so that telephones may be heard throughout construction site.

2.2 FIELD OFFICE

A. **General Contractor** shall provide at least one temporary field office for use by himself, their Subcontractors, and the **Architect**.

2.3 SANITARY FACILITIES

A. The **General Contractor** will provide proper, adequate, sanitary toilet facilities for use of all workers employed on Project, in accordance with State and Local health departments.

2.4 TEMPORARY CONSTRUCTION, EQUIPMENT AND PROTECTION

A. Provide, maintain and remove upon completion of Work, all temporary rigging, trench plates, scaffolding, hoisting equipment, rubbish chutes, ladders, barricades, lights and all other protective structures or devices necessary for safety of workers and public property as required to complete all Work.

B. Walkways and barricades: Provide pedestrian walkway protection and wood barricades conforming to Jurisdiction standards and requirements.

C. Temporary fencing: Provide chain link fencing enclosures around **unfenced areas**, **field area, track, and demolition area** of the site as required to protect pedestrians until project is complete.

D. Protection: Protect all workers and equipment from power lines and maintain safe distances and protective devices as required by Industrial Safety Commission and CAL-OSHA.

E. Temporary construction and equipment: All temporary construction and equipment shall conform to all regulations, ordinances, laws and other requirements of State and other authorities having jurisdiction, including insurance companies, with regards to safety precautions, operation and fire hazard.

F. Pumping: Provide and maintain pumping facilities, including power for keeping site, excavations and structures free of accumulations of water at all times, whether from underground seepage, rainfall, drainage or broken lines. Pond discharge to get rid of sediment prior to discharge into storm drain.

G. Damage or theft: Protect work and materials to be used on Project from damage or loss due to elements, theft, vandalism, malicious mischief, or other causes. **General Contractor** shall be held responsible for such damages or loss which he shall remedy at their expense.

H. Provide fencing to maintain means of egress in and out of the site.

2.5 PARKING OF VEHICLES

A. **General Contractor** shall be responsible for job site vehicle parking of their Subcontractor's vehicles.

PART 3 **- EXECUTION**

3.1 MAINTENANCE AND REMOVAL

A. Maintain all temporary facilities and controls as long as needed for safe and proper completion of Work; remove all such temporary facilities and controls as rapidly as progress of Work will permit.

END OF SECTION 01 50 00

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SECTION 01 5813 – TEMPORARY CONSTRUCTION SIGNAGE

PART 1 - **GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. Verify applicable dimensions at the job site for placement of temporary signage.

D. Wood framing, including posts, sheathing.

E. Finishing, including painting of substrate and letters and numerals for signage.

F. Framing hardware.

G. Concrete Footings with integral gravel base.

H. Disposal of sign assembly upon project completion.

1.2 QUALITY ASSURANCE

A. Lumber and plywood source quality control: Provide materials graded under one of the following:

1. Rules 17, Standard Grading Rules for West Coast Lumber, current edition - WCLIB.
2. Standard Grading Rules for Western Lumber, current edition - WWPA.
3. Plywood Specification and Grade Guide of American Plywood Association, current edition - APA.

B. Grade mark each piece of lumber. Marking must be done by recognized agency. Lumber Manufacturer's Association Certificates may be accepted in lieu of such grade and trademarks.

C. Plywood sheathing: Each panel shall be legibly identified as to type, grade and species by APA grade, comply with PS-1 (ANSI A199.1).

1.3 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.

B. List of materials: Submit list of materials proposed to be used including posts, sheathing & hardware.

C. Submit: Shop drawings of sign & anchorage. Sign layout shall indicate character sizes, style & spacing, type.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Division 1 product delivery, storage and handling requirements.

B. Provide, ship to project site, and install.

PART 2 - **PRODUCTS**

2.1 FRAMING LUMBER

A. Lumber: Coast Region Douglas Fir (DF), unless otherwise noted. Lumber designated DF South by WWPA not acceptable. All lumber new with no re-use.

1. Grades not less than following:

a. Posts: No. 1, Pressure treated Douglas fir - free of heart center.
b. Composite materials: Group II Exterior APA 303 Siding EXT, Smooth Face.

B. All wood other then plywood shall be pressure treated, per building code, Chapter 23 and shall bear an AWPB stamp for P.T.D.F.

1. Wood posts set into ground.

a. Treat all cut ends of P.T.D.F. with approved preservative.

2.2 ROUGH HARDWARE

A. FASTENERS: Galvanized for exterior use, in accordance with ASTM A153. Select fasteners for the fastening of the plywood substrate sign to the support posts.

1. Standard bolts and nuts: Carriage head type, ASTM A307, Grade A.
2. Plain washers: Round, general assembly grade carbon steel, FS FF-W-92.
3. Lock washers: Helical spring type carbon steel, FS FF-W-84.

2.3 SIGNAGE DESIGN

A. General

1. Size of sign panel: 4'-0" x ¾" thick x 8'-0" long
2. Supporting Posts: 4" x 4" x 10'-0"

B. Sign design:

1. General:

a. Refer to Drawings detail.

2. Characters:

a. Style: Helvetica
b. Type: Capitals
c. Border: Install characters, logos, etc. such that an equal clear border of 2" occurs around perimeter.
d. Character height::

1. Project Name: 4" tall x two lines & spaced to span sign width
2. Project Address: 3" tall x full width of sign less perimeter clearance
3. **Owner**, **Architect** & **General Contractor** name: 2" tall
4. **Owner**, **Architect** & **General Contractor** address: 1-1/2" tall

e. Line spacing:

1. 1" between name & address, type.
2. Equally spaced between Project name/address & **Owner** name/address, etc.

3. Color:

a.	Background:	ICI, 473, Autumn Squash, MP# 10YY 46/515
b.	Characters:	Jet Black
c.	Misc:	Install 1/4" dots spaced at 2"+/- on center below Williams + Paddon... name. Red, PPG Color no: 71654
d.	Paint Type:	Alkyd Enamel
e.	Finish:	High Gloss

PART 3 - **EXECUTION**

3.1 INSTALLATION

A. General:

1. Install posts straight, true, level, plumb, and place 4'-0" into 12" diameter x 3'-8" deep concrete footing. - extend 4" of post into clean gravel at base of footing.
2. Fasten sign panel to posts with (3) carriage bolts each post & spaced evenly from bottom of sign to top.
3. Install sign assembly such that top of posts are located 2" below top of sign panel & 2" measured from side of sign panel.

B. Bracing:

1. Provide temporary bracing sufficient to keep structure stable, plumb, and in line until completed.

END OF SECTION 01 58 13

SECTION 01 66 00 PRODUCT DELIVERY, STORAGE AND HANDELING REQUIREMENTS

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. Transport, deliver, handle and store materials and equipment at the site in a manner to prevent the intrusion of foreign matter or moisture, and to prevent damages. In all cases comply with:

1. Material and equipment manufacturer's instructions regarding temperature limitations.
2. Other environmental conditions, which are required to maintain the original quality of the materials and equipment.
3. Minimize packaging materials to maximum extent possible while still ensuring protection of materials during delivery, storage, and handling.

D. Packaging:

1. Provide packaged material in manufacturer's original containers with seals unbroken and labels intact until incorporating into the work.
2. Deliver materials in recyclable or in reusable packaging such as cardboard, wood, paper, or proper site waste management for demolition debris, which will be reclaimed by supplier or manufacturer for recycling.

    a. Reusable Blankets: Deliver and store materials in reusable blankets and mats reclaimed by manufacturers or suppliers for reuse where program exists or where program can be developed for such re-use.
    b. Pallets: Where pallets are used, suppliers shall be responsible to ensure pallets are removed from site for re-use or for recycling.
    c. Corrugated Cardboard and Paper: Where paper products are used, recycle as part of construction waste management recycling program, or return to material's manufacturer for use by manufacturer or supplier.
    d. Sealants, Paint, Primers, Adhesives, and Coating Containers: Return to supplier or manufacturer for re-use where such program is available.
3. Unacceptable Packaging Materials: Polyurethane, polyisocyanate, polystyrene, polyethylene, and similar plastic materials such as "foam" plastics and "shrink-fit" plastics.
4. Wrapped or bundled material shall bear the name of the manufacturer and the product.

E. Remove all damaged or otherwise unsuitable material and equipment promptly from the site.

F. Storing:

1. Delineate locations for lay down, recycling, and disposal areas; using paved areas for staging activities. Construction staging and materials storage will be at areas agreed with by Owner.
2. Locate storage piles, stacks or bins so as to avoid being disturbed and barricade to protect from damage of any kind.
3. Store all materials and equipment:

a. In accordance with manufacturer's instructions.
b. Above grade.
c. Properly protected from weather and construction activities.

G. Protection:

1. **Protection of trees, existing pavement, adjacent fields, and site utilities** during material handling.

2. Protect all finished surfaces, including jambs and soffits of all openings used as passageways or through which materials and equipment are handled.

H. Maintain clean and unmarred all finished surfaces to the date of acceptance. Repair of damage shall be made to the satisfaction of the **Architect** and **Owner**.

I. Consult individual specification sections for additional specific product handling and protection requirements.

J. Safeguards:

1. During construction **General Contractor** shall provide safeguards in accordance with, but not limited to CBC Chapter 33.

1.2 RELATED SECTIONS

A. Refer to Division 1 for construction waste management and disposal/recycling requirements.

B. Refer to Division 1 for sustainability requirements

PART 2 **- PRODUCTS**
Not Used

PART 3 **- EXECUTION**
Not Used

END OF SECTION 01 66 00

SECTION 01 71 23 – FIELD ENGINEERING

PART 1 - **GENERAL**

1.1 DESCRIPTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Provide and pay for field engineering services required for Project.

1. Survey Work required in execution of Project.
2. Land Surveyor, Civil, or other professional engineering services specified, or required to execute **Contractor's** construction methods.

C. Provide field staking of site improvements; identify existing survey reference points and property line corner stakes indicated on Drawings, as required.

D. Locate and be aware of all existing on-site utility lines and improvements.

E. Comply with all conditions of the Contract.

1.2 QUALIFICATIONS OF SURVEYOR OR ENGINEER

A. Qualified state registered professional engineer or registered land surveyor, acceptable to **General Contractor**, **Owner** and **Architect**.

B. A registered professional engineer of discipline required for specific service on Project, licensed in State of California.

1.3 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.

B. Submit name, address and California license of surveyor and professional engineer for **Architect's** and **Owner's** review.

C. At substantial completion of project, submit for review by the **Owner** and **Architect**, Certificate documentation to verify accuracy of field engineering work.

1. Submit certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

a. If **Contractor** should fail to meet technical or design requirements embodied in this document and on the applicable plans, they shall make necessary readjustments until all work is deemed satisfactory as determined by the **Architect** and **Owner**.
b. No deviation from the specifications shall be made except upon written approval of the **Architect** and **Owner**.

PART 2 - **PRODUCTS**
Not Used

PART 3 - **EXECUTION**

3.1 SURVEY REFERENCE POINTS

A. Existing basic horizontal and vertical survey reference points for Project are those designated on Drawings.

B. Locate and protect survey reference points prior to staking site work, and preserve all permanent reference points during construction.

1. Make no changes or reallocations without prior written notice to **Owner** or **Architect** for review and interpretation.
2. Report to **Owner** when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
3. Require surveyor to replace Project survey reference points which may be lost or destroyed. Establish replacements based on original survey control.

3.2 PROJECT SURVEY REQUIREMENTS

A. Establish and safeguard minimum of two permanent benchmarks on project site, referenced to data established by survey reference points. Record locations, with horizontal and vertical data, on Project Record Documents.

B. Establish and maintain lines and levels, locate and layout, by instrumentation and similar appropriate means, but not limited to, the following:

1. Site improvements:
   a. Staking For Track Geometry
   b. Turf Alignment
2. Controlling lines and levels required for mechanical and electrical trades.

C. From time to time or at **Owner's** request, verify layouts by same methods.

D. Preserve and protect all on-site underground utilities lines and existing on-site improvements in the area of construction.

3.3 RECORDS

A. Maintain complete, accurate log of all control and survey work as it progresses.

B. On completion of major site improvements, prepare certified survey showing all dimensions, locations, angles, and elevations of construction.

C. Incorporate all revisions, new work, etc. into record drawings.

END OF SECTION 01 71 23

SECTION 01 73 29 – CUTTING AND PATCHING

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Verify applicable dimensions, clearances and heights at the jobsite.

C. Demolition:

1. Coordinate the work of this Section with related trades.

a. Refer to Section 02 41 16 – Selective Demolition

D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. Execute cutting, fitting or patching of work, require to:

a. Make parts fit properly.
b. Make flatwork, paving, etc. fit properly.
c. Uncover work to provide for installation of ill-timed work.
d. Remove and replace work not conforming to requirements of Contract Documents.
e. Remove and replace defective work.
f. Remove samples of installed work as specified for testing.
g. Do not endanger any work by cutting or altering work or any part of it.
h. Cut existing flatwork, paving, etc. to fit properly with new work.

2. In addition to Contract requirements, upon written instructions of Architect:

a. Uncover work to provide for **Architect's** and/or **Inspector's** observation of covered work.
b. Remove samples of installed materials for testing, when required.

3. The Contractor with structural responsibility within their scope of work shall solely execute structural cutting and patching required for this project.

4. Cutting:

a. Minor cutting will be performed by both the General and Trade Subcontractors where required for the execution of their work. Locations of all trade cutting (core boring, etc.) shall be reviewed and approved by the **General Contractor**, **Owner** and **Inspector** where required.

5. Patching:

a. Minor patching will be performed by both the General and Trade Subcontractors where required for the execution of their work. Locations of all trade cutting (core boring, etc.) shall be reviewed and approved by the **General Contractor**, **Owner** and **Inspector** where required.
b. Will be performed under separate scope of work.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. Title 24, California Code of Regulations, California Building Standards Commission

C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission

E. Title 24, Chapter 11 – California Green Building Standards Code

1. Non-residential new construction:

a. All occupancy types.

F. Collaborative for High Performance Schools (CHPS), www.chps.net

G. American Concrete Institute (ACI), www.aci-int.org

H. American Institute of Steel Construction (AISC), www.aisc.org

I. American Iron and Steel Institute (AISI), www.steel.org

J. American National Standards Institute (ANSI), www.ansi.org

K. American Society of Mechanical Engineers (ASME) www.asme.org

L. American Society For Testing and Materials (ASTM), www.astm.org

M. American Welding Society (AWS), www.aws.org

N. American Water-Works Association (AWWA), www.awwa.org

O. Factory Mutual (FM), www.fmglobal.com

P. National Electrical Manufacturers Association (NEMA), www.nema.org

Q. National Fire Protection Agency (NFPA), www.nfpa.org

R. Occupational Safety and Health Administration (OSHA), www.osha.gov

S. Sheet Metal and Air Conditioning Contractors, Association (SMACNA), www.smacna.org

T. Sealant, Waterproofing and Restoration Institute (SWRI), www.swrionline.org

U. US Environmental Protection Agency, www.epa.gov

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:

1. Comply with manufacturer's standards.
2. Comply with Building Code.
3. Job site inspections shall be done as herein specified and as listed in drawings.
4. Testing shall be done as herein specified and as listed in drawings.
5. Refer to Division 1 for additional requirements for DSA Projects.

1.4 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.

B. Submit Manufacturer's data and shop drawings.

1. Prior to cutting which affects structural safety, submit written notice to **Architect** and **Structural Engineer** requesting consent to proceed with cutting.
2. Prior to cutting which affects Aesthetics, submit written notice to **Architect** requesting consent to proceed with cutting.

C. Submit 48-hour advance written notice to **Architect** and **Owner** and designating time work will be uncovered.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.

B. Contractor / Installer/ Fabricator shall have been in business for **five (5)** years providing/installing/finishing projects of similar size and complexity.

C. Patching of openings that are cut in any fire rated walls or membranes shall be sealed tightly using approved materials only.

1. Verify that fire rating envelopes are maintained or inspections provided prior to concealing work.
2. Cutting and patching, if required by Agencies and/or DSA to verify adequacy of protection after concealment, shall be performed at no additional cost or time extension to the **Owner**.

D. Stipulations:

1. Should conditions of work or schedule indicate change of materials or methods, submit written recommendation to **Architect** and **Owner**, including:

a. Conditions indicating change.
b. Recommendations for alternative materials or methods.
c. SUBMITTALS as required for substitutions.
d. Quotations of charges or credits.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

1.7 JOB CONDITIONS

A. Field-verify that all components, substrates, backing, etc. provided by others are installed correctly before proceeding with installation of products as herein specified.

1.8 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.

B. Finish work defaced with other materials on surface shall be replaced.

C. Protect work under this section from damage by other trades.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.

B. Furnish initial one (1) year written warranty signed by **General Contractor** agreeing to repair and/or replace work (patching) which has failed as a result of defects in materials or workmanship.

1. Upon notification of **Owner** within the warranty period, such defects shall be repaired and replaced at no cost to the **Owner**.

1.10 RELATED WORK/SECTIONS

A. Related Sections include, but are not limited to the following:

1. Refer to Division 1 for sustainability requirements.
2. Refer to Division 1 for additional requirements for DSA projects.
3. Refer to Division 1 for construction waste management and disposal/recycling requirements.
4. Divisions 2.

B. Related Documents include, but are not limited to the following:

1. Refer to Division 1 for General Conditions.

1.11 OPERATION AND MAINTENANCE DATA

A. Submit as part of project closeout.

1. Refer to Division 1 for closeout submittal procedures.

1.12 SEQUENCING AND SCHEDULING

A. Schedule work and sequence with **General Contractor**.

B. Schedule required testing, prior to the installation of materials, components, etc.

C. Each Subcontractor shall make the field measurements necessary for their work and be responsible for its accuracy.

1. Should any structural difficulties prevent a Subcontractor or tradesman from installing their material properly, the **General Contractor** shall be promptly notified so that the **Architect** may be consulted as to how best to resolve the difficulty.
2. Cutting into the walls and floors, if necessary, shall be carefully and neatly performed and then be repaired in an approved manner.
3. The **Architect** and **Structural Engineer** shall be consulted in all cases where cutting into a structural portion of the building is either desirable or necessary so that satisfactory reinforcement or other work may be provided or installed.

D. Patching of all exposed architectural finishes shall be performed under the supervision of the **General Contractor**, but executed by the affected finish trade Subcontractor.

1. Cutting and patching of existing architectural finishes shall be minimized to the extent possible through careful routing and placement of new work.
2. The **Architect** shall have the authority to reject substandard or unacceptable patching.

E. **General Contractor** shall coordinate slab vapor emission and PH testing of concrete floors which have been sawn cut to remove portions of slab and ensure that concrete treatment within criteria of finish flooring is complete prior to the installation of finish flooring as herein specified.

1.13 GENERAL SYSTEM DESCRIPTION

A. Refer to drawings typically for scope of cutting and patching.

B. Cut and patch as require to complete scope of work.

C. Demolition:

1. Concrete slab on grade:

a. Refer to drawings and details.
b. Saw cut floor to remove extent of slab, but not damage existing vapor barrier.

1) Replace /patch damaged vapor Barrier.

a) Refer to Concrete Notes on structural drawings.

c. Sawn cut extent/widths shall be done as indicated and at a minimum to provide room to allow room to drill and install dowels into existing slab prior to install of new concrete.
d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
e. If water or moisture is discovered at sub base notify **Architect** immediately.
f. Schedule:

1) Demolition:

a) Schedule:

i. Remove concrete only.

a. Refer to Section 02 41 19 – Selective Demolition
a. Refer to drawings.

ii. Remove concrete, drill and install dowels and reinforcing, patch and replace vapor barrier and place new concrete.

a. Refer to structural drawings
b. Refer to Section 03 30 00 – Cast in Place Concrete

2. Concrete slab on metal decking:

a. Refer to drawings and details.
b. Saw cut concrete to remove extent of slab, but not damage existing metal decking.
c. Sawn cut extent/widths shall be done as indicated and at a minimum to provide room to allow room to drill and install dowels into existing slab prior to install of new concrete.
d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
e. Schedule:

2) Demolition:

a) Schedule:

i. Remove concrete only.

a. Refer to Section 02 41 16 – Building Demolition
a. Refer to drawings

ii. Remove concrete, drill and install dowels, reinforcing and place new concrete.

a. Refer to drawings
b. Refer to structural drawings
b. Refer to Section 03 30 00 – Cast in Place Concrete

3. Exterior Concrete Flatwork:

a. Refer to drawings and details.
b. Saw cut concrete to remove extent of flatwork, but not damage existing sub base.
c. Sawn cut extent/widths shall be done as indicated and at a minimum to provide room to drill and install dowels into existing flatwork prior and reinforcing at new extent to place new concrete.
d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
e. If water or moisture is discovered at sub base notify **Civil Engineer**, **Owner** and **Architect** immediately.
f. If water or moisture is discovered at sub base notify **Civil Engineer**, **Owner** and **Architect** immediately.
g. Schedule:

1. Demolition:

a. Schedule:

1. Remove concrete only.

a. Refer to Section 02 41 16 – Building Demolition

2. Remove concrete, drill and install dowels, reinforcing and place new concrete and finish as indicated in drawings.

a. Refer to civil and structural drawings
b. Refer to Section 32 13 13 – Concrete Paving

4. Exterior Asphalt Paving:

a. Refer to drawings and details.
b. Saw cut asphalt to remove extent of paving, but not damage existing sub base.
c. Sawn cut extent/widths shall be done to allow room to drill and install dowels into existing slab prior to install of new concrete.
d. Sawn cut extents of concrete/masonry shall be done to an extent necessary to remove piping, conduit, etc.
e. Schedule:

1) Construction:

a) Refer to Civil and Architectural drawings.
b) Place new asphalt

i. Refer to Section 32 12 16 – Asphalt Paving
ii. Refer to Civil drawings.

2) Demolition:

a) Schedule:

i. Remove asphalt only.

a. Refer to Section 02 41 16 – Building Demolition

ii. Remove asphalt and place new asphalt and finish as indicated in drawings.

a. Refer to Civil and Structural drawings
b. Refer to Section 32 12 16 – Asphalt Paving

PART 2 - **PRODUCTS**

2.1 MATERIALS

A. Materials for replacement of work removed: comply with specifications for type of work to be done.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the **General Contractor** subject to the approval of the **Architect Owner**.

PART 3 **- EXECUTION**

3.1 INSPECTION/EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions under which work is to be performed.
2. Identify conditions detrimental to proper or timely completion of work and coordinate with **General Contractor** to rectify.

B. Surface:

1. Examine and verify that receiving conditions of substrate have no defects or errors, which would result in poor or potentially defective application or cause latent defects in workmanship.

C. Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching.

D. After uncovering work, inspect conditions affecting installation of new products.

3.2 COORDINATION

A. Refer to Section 01 31 13 – Project Coordination.

B. **General Contractor** shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

3.3 PREPARATION

A. Prepare work, substrates, etc. in accordance with manufacturer's recommendations.

B. Provide shoring, bracing and support as required to maintain structural integrity of work.

C. Provide protection for other portions of work.

D. Provide protection from elements.

E. Each Subcontractor shall make the field measurements necessary for their work and be responsible for its accuracy.

1. Should any structural difficulties prevent a Subcontractor or tradesman from installing their material properly, the **General Contractor** shall be promptly notified so that the **Architect** may be consulted how best to resolve the difficulty.
2. Cutting into the walls and floors, if necessary, shall be carefully and neatly performed and then be repaired in an approved manner.
3. The **Architect** and **Structural Engineer** shall be consulted in all cases where cutting into a structural portion of the building is either desirable or necessary so that satisfactory reinforcement or other work may be provided/installed.

3.4 INSTALLATION

A. General:

1. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.

a. Proceed and provide cutting and patching as herein specified and as indicated in drawings.

B. Performance:

A. Execute fitting and adjustment of products to permit finished installation to comply with specified tolerances and finishes.

B. Perform cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work.

C. Patching of openings that are cut in any fire rated walls or membranes shall be sealed tightly using approved materials only.

a. Verify that fire rating envelopes are maintained or inspections provided prior to concealing work. Cutting and patching, if required by Agencies to verify adequacy of protection after concealment, shall be performed at no additional cost or time extension to the **Owner**.

3.5 PROTECTION AND CLEAN UP

A. Refer to Division 1 for protection and cleaning requirements.

B. Subcontractor will keep the work areas in a clean and safe condition so their rubbish, waste, and debris do not interfere with the work of others.

C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

D. Clean adjacent surfaces free of caulking or sealant with mechanical action or solvent as necessary, avoiding damage to other materials.

E. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.

F. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.

G. After completion of work in this section, remove all erection equipment and implements of service, and debris.

   1. Leave entire area in a neat, clean, acceptable condition.

H. Provide Guarantee/Warranties and Bonds as required in this specification section and as listed in Division 1 closeout submittal procedures.

I. Provide record drawings in accordance with Division 1 closeout submittal procedures.

J. Close out, on-site inspection will be at the discretion of the **Architect** after he receives the **General Contractor's** Notice of "Certificate of Substantial Completion".

END OF SECTION 01 73 29

SECTION 01 74 00 – PROTECTION AND CLEANING

PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. Execute protection and cleaning daily, during progress of Work, and at completion of Work, as required by General Conditions and specifications.
2. Building: Keep areas of work in building free from accumulated debris, rubbish and waste materials as work progresses.
3. Site: Keep areas of work within site free from accumulated debris, rubbish and waste materials as work progresses.
4. Protect work and materials of each Section prior to and during installation, and protect the installed work and materials of other trades.
5. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.
6. After completion of work in this Section, remove all equipment, tools, cleaning supplies, etc. from site.
7. Provide product information, instruction manuals & warrantees.

D. Coordinate protection and cleaning with each specific specification section.

E. Coordinate protection and cleaning with demolition work.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. Title 24, California Code of Regulations, California Building Standards Commission.

C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission.

E. Title 24, Chapter 11 – California Green Building Standards Code

1. Non-residential new construction:

a. All occupancy types.

F. Collaborative for High Performance Schools (CHPS), www.chps.net

G. National Demolition Association, www.demolitionassociation.com

1.3 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.

B. **General Contractor** shall have been in business for **five (5)** years providing/installing/finishing similar size projects and complexity.

1.4 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

B. Disposal operations shall be in compliance with **General Contractor's** Construction Waste Management plan as approved by the **Owner**.

1. Refer to Division 1 for construction waste management and disposal/recycling requirements.

1.5 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to the following:

1. All construction.

B. Related Sections include, but are not limited to the following:

1. Refer to Division 1 for sustainability requirements.
2. Refer to Division 1 for construction waste management and disposal/recycling requirements.
3. Division 2-33.

PART 2 **- PRODUCTS**

2.1 MATERIALS

A. Cleaning and Maintenance Products:

1. Provide data on manufacturers' recommended maintenance, cleaning, refinishing and disposal procedures for materials and products.

a. Where chemical products are recommended for these procedures, provide documentation to indicate that no component present in the cleaning product at more than 1% of the total mass of the cleaning product is a carcinogen or reproductive toxicant as defined in the lists in this specification section.
b. For purposes of reporting, identification of product VOC contents shall not be limited to those regulated under Clean Air Act (CAA) but shall also include compounds exempted from the CAA definition and listing of VOCs.
c. California EPA and local air district definitions of VOCs based on CAA are not sufficient as they exempt compounds based on non-reactivity for outdoor air pollution control but still important for indoor air quality.
d. Avoid cleaning products containing alpha-pinene, d-limonene or other unsaturated carbon double bond alkenes due to chemical reactions with ozone to form aldehydes, acidic aerosols, and ultra-fine particulate matter in indoor air.

1. The State of California Department of General Services has published specifications for Environmentally Preferable Janitorial Chemicals and a list of cleaning/maintenance products meeting these specifications. Both are available on the internet at:
    a. http://www.ciwmb.ca.gov/greenbuilding/Specs/Janitorial.doc
    b. http://www.resd.dgs.ca.gov/BPM/lists.htm

B. These procedures are for final General Contractor cleaning of the project prior to substantial completion and for provided materials and products as required by the specific specification sections.

C. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned and which will not damage surfaces.

D. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

2.2 CHEMICALS OF CONCERN

A. Chemicals of Concern include but are not limited to those chemicals listed below as toxic air contaminants, carcinogens, teratogens, reproductive toxins, and chemicals with established Chronic Reference Exposure Levels (REL):

B. Carcinogens: Chemicals listed as probable or known human carcinogens in the latest published edition of the following two lists:

1. California Environmental Protection Agency, Air Resources Board (ARB), list of Toxic Air Contaminants (California Air Toxics).http://www.arb.ca.gov/toxics/summary/summary.htm.
2. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.

C. Reproductive Toxicants: Chemicals known to cause reproductive toxicity including birth defects or other reproductive harm in the latest published edition of the following list: California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). http://www.oehha.ca.gov/prop65/prop65_list/Newlist.htm.
Chemicals with established Chronic Reference Exposure Levels (REL): Chronic RELs have been developed for 65 hazardous airborne substances as of January 2001. A chronic REL is an airborne concentration level that would pose no significant health risk to individuals indefinitely exposed to that level. RELs are based solely on health considerations, and are developed from the best available data in the scientific literature. The California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) establishes and publishes RELs.

D. Chronic Reference Exposure Levels for organic chemicals with possible indoor sources, based on the California OEHHA list.

1. Do not use any of the chemicals listed in the list.
2. The most recent list may be found at: http://www.oehha.org/air/chronic_rels/allChrels.html

PART 3 **– EXECUTION**

3.1 DURING CONSTRUCTION & DEMOLITION

A. Construction work, cleaning and protection refer also to the following section and the most restrictive shall govern:

1. Refer to Division 1 for construction waste management and disposal/recycling requirements.

B. Demolition work, cleaning and protection refer also to the following sections and the most restrictive shall govern;

1. Refer to Division 1 for construction waste management and disposal/recycling requirements.
2. Section 02 41 16 – Building Demolition

C. Execute periodic cleaning to keep Work, site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

D. Provide on-site containers for collection, disposal and/or recycling of waste materials, debris and rubbish in compliance with **General Contractor's** Construction Waste Management Plan as approved by **Owner**.

1. Refer to Division 1 for construction waste management and disposal/recycling requirements.

E. Protect material and work as recommended by manufacturer, drawings and as specified.

1. Clean adjacent surfaces free of caulking or sealant with mechanical action or solvent as necessary, avoiding damage to other materials.
2. Remove masking tape immediately after tooling joints, leaving finished work in neat and clean condition.
3. Clean all surfaces, materials, etc. free of dust and dirt.
4. Clean up and leave premise broom clean and vacuum cleaned; clean adjoining work spotted or otherwise defaced by work of this Section.

a. Access Floor cavity shall be cleaned to same standard as HVAC ductwork.

F. Moisture Protection:

1. Moisture Stains:

a. Materials with evidence of moisture damage, including stains, are not acceptable, including both stored and installed materials;

1. Immediately remove from site and properly dispose.
2. Take special care to prevent accumulation of moisture on installed material and within packaging during delivery, storage, and handling to prevent development of molds and mildew on packaging and on products.

b. Immediately remove from site and properly dispose of materials showing signs of mold and signs of mildew, including materials with moisture stains.
c. Replace moldy materials with new, undamaged materials.
d. Mitigate and remove all mold and mildew discovered.

2. Ducts:

a. Seal ducts during transportation, delivery, and construction to prevent accumulation of construction dust and construction debris inside ducts.

3. Protect interior materials from water intrusion or penetration; where interior products not intended for wet applications are exposed to moisture, immediately remove from site and dispose of properly.
4. Protect installed products using methods that do not support growth of molds and mildews.
    a. Immediately remove from site materials with mold and materials with mildew.

G. Dust Protection:

1. Clean interior spaces prior to start of finish painting and continue cleaning on as-needed basis until painting is finished.
2. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

3.2 FINAL CLEANING

A. Employ skilled workers for final cleaning.

B. Comply with specific requirements as indicated in each specification section.

C. Comply with applicable regulatory requirements during the conduct of cleaning, disposal and recycling operations and in compliance with **General Contractor's** Construction Waste Management Plan as approved by **Architect** and **Owner**.

D. Use cleaning materials which will not create hazards to health or property or cause damage to products or Work.

1. Refer to Table 1, Part 2 as herein specified for disallowed chemicals.

E. Use cleaning materials and methods recommended by the manufacturers of the products to be cleaned and as described in Part 2 of this specification section.

1. Most restrictive shall govern.

F. Cleaning:

1. Using cleaning and maintenance products as described in Part 2 of this Section and as specifically required per each applicable specification section, including, but not limited to;
    a. General:
        1. Remove dust, dirt, grease, stains, fingerprints, labels, spilled and spattered, and other foreign materials from interior and exterior surfaces exposed to view.
        2. Polish transparent and glossy surfaces to a clear shine.
        3. Vacuum dust and dirt from all surfaces.
    b. Flatwork and Paving:
        1. Clean hard surface flatwork and paving.
        2. Demolition – unless otherwise noted, all flatwork and paving shall be demolished as indicated in drawings and/or specified.
            a. Refer to Section 02 41 16 – Building Demolition
    c. Flooring:

1. Demolition – unless otherwise noted, all flooring shall be demolished as indicated in drawings and/or specified.
    a. Refer to Section 02 41 16 – Building Demolition

d. Walls:
    1. Demolition – unless otherwise noted, all walls shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 16 – Building Demolition

e. Ceilings:
    1. Demolition – unless otherwise noted, all ceilings shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 16 – Building Demolition

f. Interior Wall Glazing:
    1. Demolition – unless otherwise noted, all flooring shall be demolished as indicated in drawings and/or specified.
        a. Refer to Section 02 41 16 – Building Demolition

g. Electrical Fixtures:
    1. Clean surface of finish lighting fixtures to be free of dust, finger prints etc. to a new appearance.
    2. Clean out debris, bugs, etc. which have accumulated inside fixture lens.
    3. Vacuum and wipe insides of electrical and low voltage panels, racks and cabinetwork.

h. Fixtures:
    1. Clean equipment and fixtures to sanitary condition.
    2. Demolition – unless otherwise noted, all fixtures shall be removed and disposed of as indicated in drawings and/or specified.
        a. Refer to Section 02 41 16 – Building Demolition

i. HVAC and ventilation system and components:
    1. If ducts were not sealed during construction, and contain dust or dirt, clean ducts using HEPA vacuum immediately prior to Substantial Completion and prior to using ducts to circulate air.
        a. Raised Access Floor cavity shall be cleaned to same standard as HVAC ductwork.
    2. Replace all air filters installed at air handling units and ducts before and during construction.
    3. Oil film on sheet metal shall be removed before shipment to site.
        a. However, ducts shall be inspected to confirm that no oil film is present.
            1. Remove oil using cleaning and maintenance products as described in Part 2 of this Section.

4. Demolition – unless otherwise noted, all ductwork, brackets, etc. shall be removed and disposed of as indicated in drawings and/or specified.
    a. Refer to Section 02 41 16 – Building Demolition
5. Demolition – Ductwork: unless otherwise noted, all ductwork, brackets, etc. shall be removed and disposed of as indicated in drawings and/or specified.
    a. Refer to Section 02 41 16 – Building Demolition
6. Demolition –HVAC units: refer to drawings for scope of removal of units.
    a. Refer to Section 02 41 16 – Building Demolition

2. Recycled materials:
    a. Remove and properly recycle materials removed during construction work, refer also to;
        1. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.
    b. Demolition - Remove and properly recycle materials removed during demolition work, refer also to;
        1. Waste management program, refer to;
            a. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.
3. Demolished materials:
    a. Remove and properly dispose of all demolished materials during demolition work, refer also to;
        1. Section 02 41 16 – Building Demolition
        2. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Architect** and **Owner**.
4. Waste materials:
    a. Remove and properly dispose and recycle all waste materials during construction work, refer also to;
        1. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.
    b. Demolition - Remove and properly dispose and recycle all materials during demolition work, refer also to;
        1. Refer to Division 1 for construction waste management and disposal/recycling requirements and as described in **General Contractor's** Construction Waste Management Plan as approved by the **Owner**.

2. Section 02 41 16 – Building Demolition

5. Exterior:

   a. Clean site and roof areas of sticks, rubbish, and other debris.
   b. Broom and power wash all flatwork and paving.
   c. Clean all finish paving materials such as brick, interlocking pavers, etc. in accordance with the specific manufacture.
   d. Broom-clean exterior paving.
   e. Rake clean ground surfaces.
   f. Coordinate cleaning, protection and maintenance with all Division 2 sections.

G. Prior to final inspection or **Owner** occupancy, **General Contractor** shall conduct inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that entire Work is clean.

END OF SECTION 01 74 00

SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL/RECYCLING

PART 1 - **GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. Verify applicable dimensions, clearances and heights at the jobsite.

D. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. Construction Waste Management Plan

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

C. Title 24, Chapter 11 – California Green Building Standards Code

1. Non-residential new construction

a. All occupancy types

D. Collaborative for High Performance Schools (CHPS), www.chps.net

1.3 PERFORMANCE, TESTING AND INSPECTION

A. **General:**

1. Comply with manufacturer's standards.
2. Comply with Building Code.
3. Comply with "Construction Waster Management Plan".

B. **Construction Monitoring/Observations by others:**

Item	**Name of Test**	**Performance Results**	**By Whom**
As indicated in Waste Management Plan	Const. Waste Management	Comply	As herein indicated and in Waste Management Plan document

1.4 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.

B. Submit O&M (Operation and Maintenance) manuals in accordance with Division 1 requirements and as herein specified.

C. Refer to Division 1 for sustainability requirements.

1.5 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.

B. Contractor / Installer / Fabricator shall have been in business for five (5) years providing/installing/finishing projects of similar size and complexity.

C. Regulatory Requirements: Comply with all applicable federal, state, and local ordinance and regulation requirements for recycling and waste management.

D. Disposal Sites, Recyclers, and Waste Management Processors: Use only facilities properly permitted by State and Local authorities.

E. Construction Waste Management Plan

1. The **General Contractor** shall prepare a Construction Waste Management Plan and submit to the **Owner** and **Architect** for review within 21 days after the date of the Notice to Proceed.
2. The Construction Waste Management Plan shall identify the means and methods by which the **Contractor** will achieve the project's recycling goals.
3. Make any revisions to the Construction Waste Management Plan per **Architect's** review comments. Submit the revised plan to the **Owner** and **Architect** for final approval.

F. Implementation of Construction Waste Management Plan:

1. Designate an on-site party responsible for instructing workers and implementing the Construction Waste Management Plan.
2. Distribute copies of the Construction Waste Management Plan to the job site foreman, superintendent, and each subcontractor.
3. Include Waste Management and recycling in worker orientation.
4. Provide instruction on appropriate separation, handling, recycling and salvaging methods to be used by all parties at the appropriate stages of the work at the site.
5. Prominently display Construction Waste Management Plan. If on-site separation is used, clearly mark all containers and areas on site dedicated to each type of recyclable material.
6. Include waste management and recycling discussion in pre-fabrication meetings with subcontractors and fabricators.
7. Also include discussion of waste management and recycling in regular job meetings and job safety meetings conducted during the course of work at the site.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.

B. Salvage Materials: Provide protective handling and storage as required for all items identified for salvage and reuse by the **Owner**.

C. Recyclable Waste: Remove all recyclable materials, as identified in the Waste Management Plan, from the work location to approved containers daily. Failure to remove waste materials will be considered cause for withholding payment.

D. Provide containers as required to comply with Construction Waste Management Plan and to prevent contamination of materials, including protection from rain and snow as applicable.

E. Replace loaded containers with empty ones as demand requires.

F. Handling: Deposit all materials in the containers in a clean (no mud, adhesives, solvents, petroleum contamination), debris-free condition. Do not deposit contaminated materials into the containers until such time as such materials have been cleaned.

G. If contamination chemically combines with the material so that it cannot be cleaned, do not deposit into the containers.

1.7 JOB CONDITIONS

A. Environmental Requirements: Transport waste materials from the Work Area to the recycle containers and carefully deposit in the containers in a manner to minimize noise and dust. Close container covers immediately after materials are deposited. Do not place recyclable waste materials on the ground adjacent to a container.

B. Existing Conditions: Coordinate with "Instructions to Bidders" and Supplementary Conditions".

1.8 PROTECTION

A. Protect finish surfaces at all times from work under this section.

1.9 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.

1.10 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to the following:

1. Demolition

B. Related Sections include, but are not limited to the following:

1. Refer to Division 1 for sustainability requirements
2. Refer to Division 1 for quality control requirements
3. Refer to Division 1 for closeout submittal procedures
4. Refer to Division 1 for protection and cleaning requirements
5. Section 02 41 16 – Building Demolition

1.11 SEQUENCING AND SCHEDULING

A. Schedule work and sequence with **General Contractor**.

1.12 DEFINITIONS

A. Waste Materials: Construction materials that are excess to the contract requirements and which cannot be effectively used in the Work.

B. Salvaged (or Reused) Materials:

1. Construction materials recovered from existing buildings or construction sites and reused in other buildings or new building.

2. Common salvaged materials include structural beams and posts, flooring, doors, cabinetry, brick and decorative items.

C. Recyclable Waste: Waste materials that are existing on-site or are generated during the construction process that can be recycled/remanufactured into another material.

D. Categories of Salvageable or Recyclable waste include the following, but are not limited to;

1. General:

a. Cardboard:

1. Clean, corrugated cardboard such as used for packaging, etc.

b. Chemical Waste:

1. Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic chemicals.

c. Co-Mingled:

1. Several types of construction waste that are combined in a single container.
2. Co-mingling of recycling waste must be approved by the identified recycling facility.

d. Hazardous Waste:

1. Any substance whose handling and/or disposal is regulated as hazardous waste by local, state or federal authorities.

e. Paper Goods:

1. Office paper: Includes any paper, such as manufacturer instructions, specification sheets, files, correspondence, packaging, stiffeners, etc.
2. Newsprint: Shredded or whole newspaper goods.

f. Plastic:

1. Beverage containers, packaging materials (such as polystyrene "peanuts" and expanded polystyrene), containers (other than those used for hazardous materials), vinyl products, etc.

g. Sanitary Wastes:

1. Garbage: Refuse and scraps resulting from preparation, cooking, distribution or consumption of food.
2. Sewage: Domestic sanitary sewage.

h. Source Separated:

1. Materials that are separated on-site by Category.

i. Other:

1. Any additional materials identified on-site to be valued for salvage, reuse, or recycling by the **Contractor** and **Owner**.

2. Site:

a. Asphalt, Concrete, rock, brick

1. Concrete, brick, rock, broken up asphalt pavement, clay, and other inert (non-organic) materials.

b. Fill - Inert:

1. A permitted facility that accepts inert waste such as asphalt and concrete exclusively.

c. Landfill – Class III and soil:

1. A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair and demolition operations.

d. Land Clearing Debris:

1. Solid Waste Generated from land clearing operations, such as stumps, woody debris, limbs and brush, clean soil, etc.
2. Does not include rock, concrete or chemically treated landscape timbers.

e. Vegetation - Existing:

1. Includes sod, shrubs, plants, and trees that will be disturbed or removed during construction.

3. Building:

a. Concrete & Masonry

1. Concrete, clay, and other inert (non-organic) materials.

b. Carpet and padding:

1. Face fiber, backing, padding and carpet cushion scrap.

c. Fabric:

1. Uncontaminated fabric scraps.

d. Glass:

1. Includes glass beverage containers, glazing and recyclable glass building materials.

e. Gypsum Wallboard:

1. Excess drywall construction materials including cuttings, other scrap and excess materials.

f. Insulation:

1. Rigid foam, batt and loose fill insulation materials.

g. Metals:

1. Metal Ferrous and Non-ferrous including;

a. Iron
b. Steel
c. Copper
d. Brass

e. Aluminum

2. Note: Includes beverage containers, packaging materials (such as metal banding) fencing, reinforcing bar, wiring, plumbing, etc.

h. Paints:

1. Unused portions of paints, primers and coatings applied on site.

i. Rubber:

1. Uncontaminated rubber scraps, including but not limited to recycled-content rubber flooring, rubber edging, tires that are no longer serviceable, etc.

j. Wood – clean & untreated:

1. Dimensional lumber
2. Wood edging
3. Wood shipping pallets
4. Wood misc. components/materials

k. Wood – clean & engineered products:

1. Plywood
2. Oriented strand board
3. Masonite
4. Particleboard
5. Manufactured trusses and beams
6. Glue-laminated timbers.
7. Rough sawn lumber/timber

4. Exclusions:

a. As herein listed

1.13 GENERAL SYSTEM DESCRIPTION

A. The Construction Waste Management goal for this project is:

1. Minimum of percentage of total Project waste shall be diverted from landfill.

B. The **Contractor** shall develop a Waste Management Plan as defined in this Section and submit for review by the **Owner** and **Architect**.

C. **Contractor** shall implement procedures to minimize the creation of construction and demolition waste on the job site. As many of the waste materials as economically feasible shall be reused, salvaged or recycled. Waste disposal in landfills shall be minimized.

D. The **Contractor** shall provide and submit documentation throughout construction that waste management, recycling and re-use of recyclable and re-useable materials are being maximized.

PART 2 - **PRODUCTS**

2.1 ACCEPTABLE MANUFACTURERS

A. Products are acceptable to use as intended for waste management work.

2.2 MATERIALS

A. As necessary by contractor to complete their work and used for the purpose of demolition, etc. as herein specified and additionally as indicated in contract documents.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for complete and proper demolition activities, as selected by the **General Contractor** subject to the approval of the **Architect**.

2.4 CONSTRUCTION WASTE MANAGEMENT PLAN

A. References for Additional Information:

1. California State Agency Buy Recycled Campaign, The Department of General Services and the California Integrated Waste Management Board www.ciwmb.ca.gov/buyrecycled/stateagency

2. Refer to Division 1 for sustainability requirements

B. Construction Waste Management Plan:

1. **Contractor** shall develop a construction waste management plan indicating proposed methods for collection, segregation, and removal of all construction wastes and debris produced by the work of this Contract.
2. Those waste materials produced during the course of this Contract that can be recycled cost-effectively, shall be.
3. The Waste Management Plan shall include, at a minimum, the following:
    a. Provide an analysis of jobsite waste to be generated, including types and quantities.
    b. Provide strategies for salvage, reuse, or recycling for a minimum of all materials listed below. Include additional waste materials that are deemed cost-effective to salvage, re-use or recycle. See "Definitions" above for material categories.
    c. Provide documentation to justify decision not to recycle any items listed below.
    d. **Contractor** may choose on-site separation or co-mingled with off-site separation.
        1. Method chosen shall be documented.
    e. Show compliance with applicable State and Local ordinances and regulations.
    f. Identify and document construction waste haulers and recyclers which will handle the designated material.
    g. Include participation in and procedures for recycling/re-use program.
    h. Include participation in and procedures for rebate programs.
    i. Identify materials that are not recyclable or otherwise conservable that must be disposed of in a landfill or other means acceptable under governing State and Local regulations.
    j. Indicate any instances where compliance with requirements of this Section does not appear to be possible and request resolution from **Owner**.
4. **Contractor** shall submit Construction Waste Management Plan for review and approval as part of Submittal process.

5. Review of Contractor's Waste Management Plan shall not relieve **Contractor** of responsibility for control of pollutants and other environmental protection measures.

C. Waste Materials: The following materials shall be salvaged and/or recycled according to this specification and the other specific product specifications.

1. Strategies for salvage and recycling shall be identified in the Waste Management Plan as required.
2. Salvage Materials: Identify materials existing on site that are candidates for salvage and re-use, either on this Project or through sale or donation to local organizations.
3. Recyclable Materials: Materials including, but not limited to the following shall be considered for salvage or recycling.

a. Schedule: Applies to all waste materials produced during the course of this Contract, as listed in drawings and as specified in other sections to include, but not be limited to:

1) General:

a) Cardboard
b) Paper Goods
c) Chemical Waste
d) Co-Mingled materials
e) Hazardous Waste
f) Plastic
g) Sanitary Wastes:
h) Source Separated materials
i) Other material valued for salvage, reuse and/or recycling

2) Site:

a) Sand
b) Asphalt
c) Concrete
d) Masonry
e) Brick
f) Rock
g) Rebar
h) Fill - Inert:
i) Landfill – Class III and soil
j) Land Clearing Debris
k) Vegetation - Existing

3) Building:

a) Concrete
b) Precast concrete
c) Masonry
d) Brick
e) Rebar
f) Glass
g) Gypsum board

h) Insulation
i) Metal
j) Paint
k) Rubber
l) Wood – clean and untreated
m) Wood – clean & engineered products

4) Exclusions:

a) Pressure treated or creosote treated wood
b) Non-Recyclable Waste:

i. All waste materials that cannot be recycled, due to contamination, lack of recycling facilities or salvage options or high-cost.

D. Delivery Receipts: Maintain copies of all delivery receipts for waste materials sent to permitted waste materials processors or recyclers that indicate the location and name of firm accepting recyclable waste materials, types of materials, net weights of each type, which materials have been recycled, and date of delivery.

E. Maintain working copy of Construction Waste Management Plan at site for review by **Owner**, **Architect** and all Trades involved in Project.

F. Participation in Recycling/Re-Use and/or Rebate Programs: Rebates, Tax Credits, and other savings obtained for recycled or re-used materials shall accrue to the **General Contractor**.

PART 3 - **EXECUTION**

3.1 INSPECTION/EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions under which work is to be performed.
2. Identify conditions detrimental to proper or timely completion of work and coordinate with **General Contractor** to rectify.

3.2 COORDINATION

A. Refer to Division 1 for project coordination requirements.

1. **General Contractor** shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

3.3 PREPARATION

A. Prepare work in accordance with Waste Management Plan

3.4 INSTALLATION/IMPLEMENTATION

A. General:

2. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.

B. Waste Management

1. General: Implement waste management procedures in accordance with Construction Waste Management Plan as approved by **Owner.** Maintain procedure throughout the life of this Contract.
2. On-Site Source Separation (when this method is used by the **General Contractor**). Separate, store, protect, and handle at the project site all identified recyclable and salvageable waste products to prevent contamination of materials and maximize recycling and salvage of materials. Clearly label all recycling containers and list acceptable and unacceptable materials.
3. Collection: Arrange for timely pickups from the site or deliveries to approved recycling facilities of designated waste materials to keep construction site clear and prevent contamination of recyclable materials. Maintain records accessible to the **Owner** for verification of construction waste materials recycling.
4. Delivery Receipts: Keep and maintain records of all deliveries to recycling facilities and all pickups of waste materials at the site by others as specified above.
5. Salvage and Re-use: Identify salvage and re-use options for all materials that are deemed to be re-usable, but will not be re-used on this Project.
6. Non-Recyclable Waste: Collect and segregate non-recyclable waste for delivery to a permitted landfill site.
7. Hazardous Waste: Control and dispose of hazardous waste in accordance with local, state, and federal regulations.

3.5 PROTECTION AND CLEAN UP

A. Refer to Division 1 for protection and cleaning requirements.

B. Subcontractor will keep the work areas in a clean and safe condition so their rubbish, waste, and debris do not interfere with the work of others.

C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

D. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.

E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.

F. After completion of work in this section, remove all erection equipment and implements of service, and debris.

1. Leave entire area in a neat, clean, acceptable condition.

G. Provide Guarantee/Warranties and Bonds as required in this specification section and as listed in Division 1 closeout submittal procedures.

H. Refer to Division 1 for closeout submittal procedures.

I. Close out, on-site inspection will be at the discretion of the **Architect** after he receives the **General Contractor**'s NOTICE of "Certificate of Substantial Completion".

END OF SECTION 01 74 19

SECTION 01 77 00 - CONTRACT CLOSEOUT AND FINAL CLEANING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Completion of Work.

B. Special Conditions.

C. Temporary Facilities and Controls.

1.02 CLOSEOUT PROCEDURES

The contractor shall comply with all closeout provisions as indicated in the General Conditions.

1.03 FINAL CLEANING

A. Contractor shall execute final cleaning prior to final inspection.

B. Contractor shall clean & remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, soft surfaces.

C. Contractor shall clean equipment and fixtures to a sanitary condition.

D. Contractor shall replace filters of operating equipment.

E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.

F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.

G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site and surrounding areas.

1.04 ADJUSTING

Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

1.05 RECORD DOCUMENTS AND SHOP DRAWINGS

A. Contractor shall legibly mark each item to record actual construction, including:

(1) Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.

(2) Field changes of dimension and detail.

(3) Details not on original Contract Drawings

(4) Changes made by modification(s).

(5) References to related Shop Drawings and modifications.

B. Contractor will provide one set of Record Drawings to District.

C. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

1.06 INSTRUCTION OF DISTRICT PERSONNEL

A. Before final inspection, at agreed upon times, Contractor shall instruct District's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six months or by the change of season.

C. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

D. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when the need for such data becomes apparent during instruction.

E. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

A. Contractor shall provide products, spare parts, maintenance, and extra materials in quantities specified in the Specifications and in Manufacturer's recommendations.

B. Contractor shall provide District with all required Operation and Maintenance Data at one time. Partial or piecemeal submissions of Operation and Maintenance Data will not be accepted.

PART 2 – PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF DOCUMENT

SECTION 01 78 00 – CLOSEOUT SUBMITALS

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. **General Contractor** shall furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to:

1. As-Built Documents: (Record of As-Built conditions during construction)
    a. Keeping and recording of progress As-Built Drawings and Specifications during construction.
        1) Includes record keeping for site demolition work
    b. Distribution of Draft As-Built Drawings and Specifications at project closeout for review by **Architect** and **Owner**.
    c. Distribution to **Architect** and **Owner** of final As-Built drawings and Specifications once contractor has addressed all comments by **Owner** and Design team.

2. O & M Manuals:
    a. Compilation of O&M Manuals in hard copy format and distribution to the **Owner** and **Architect** as a Submittal for review and comment.
    b. Application of **Architect** and **Owner** revisions and re-submittal for final review.
    c. Upon reviewed approval, issuance of finalized O&M manuals in the following formats:
        1) One (1) PDF File
        2) One (1) hard copy set

3. Project Closeout
    a. Punch Lists / Corrective Construction:
        1) Initiate project closeout by providing a comprehensive list of all items to be completed and corrected.
    b. Testing, Inspections and adjusting:
        1) Perform all tests and inspections in accordance with plans and specifications.
    c. California Energy Code Compliance:
        1) Observe all testing, document and complete all forms for compliance.
    d. Commissioning and Balancing:
        1) Check all mechanical equipment, electrical lighting, etc. for compliance with design, codes and standards.

e. Operation, Maintenance and System Demonstration:

1) Train **Owner** personnel in operation and maintenance of all equipment, mechanical equipment, hardware, etc.

f. Green Building Standards, California:

1) Document that all required, specified and indicated California Green Building Standards have been addressed.
2) All documentation shall be included in O&M manual.

g. Warrantees / Guarantees / Bonds:

1) Before final payment, furnish to the **Owner**, through the **Architect**, all written warranties of work and equipment installed under the contract.
2) Obtain specified bonds.

h. Insurance

1) Notify the Owner of any changes in insurance coverage requirements.

i. CAL Green:

1) Provide documentation as covered in Division 1 sustainability requirements and in individual sections.

j. Certificate of Occupancy:

1) Obtain this and similar releases that permit the **Owner's** full and unrestricted use.

k. Extra Stock & Spare parts
l. Final Cleaning
m. Keying and Keying Schedule
n. Certificates, Affidavits and Records
o. Agency related submittals

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. Title 24, California Code of Regulations, California Building Standards Commission

C. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.

D. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission

E. Collaborative for High Performance Schools (CHPS), www.chps.net

1.3 PARTIAL OCCUPANCY

A. The **Owner** has the right to use or occupy the building or any part thereof, or to use equipment installed under the contract, prior to final acceptance.

B. Substantially completed portions of Work shall be designated and authorized with Certificate of Substantial Completion (AIA Document G704) for **Owner's** occupancy prior to completion of entire Work.

1. Refer to document herein attached.
2. Owner shall use or occupy the building site following issuance of Certificate of Substantial Completion (AIA Document G704).

C. **Owner** will occupy designated areas for purpose of installing **Owner**-furnished items.

D. **Contractor** shall allow:

1. Access for **Owner** personnel.
2. **Owner** use of parking facilities.

E. Upon occupancy the following shall be provided by **General Contractor** unless otherwise approved and contracted to be provided by **Owner**:

1. Maintenance
2. Security
3. Insurance

1.4 AS-BUILT DRAWINGS / DOCUMENTS

A. As-Built Drawings / Documents

1. General:

a. Show materials, size and depth from surface of said installations, as well as line followed
b. In addition the **General Contractor** shall keep accurate record of all dimensioned items where installed items differ in location from where dimensioned on the Drawings.
c. Do not permanently conceal any work until required information has been recorded.
d. Ensure entries are complete and accurate.

1) All information entered on As Built documents during course of project shall be neat, legible and emphasized by drawing "clouds" around changed items. Format of changed items on drawings shall be acceptable to **Architect**.
2) Actual information must be entered in documents, just a note as to the ASI, RFI number, etc. is not acceptable.
3) All symbols and designations used in preparing As Built documents shall match those used in Contract Drawings and Specifications.

e. Keep record information current (within 7 days) with construction progress.
f. Label each document "Progress As-Built Documents" in large, neat, printed letters and store separate from those used for construction.
g. **Architect** and their consultants will not release electronic files to any parties unless agreed upon in writing.

1) Architect shall issue waiver release of liability form for signatures prior to release of any electronic files agreed upon.

2. Documentation:

a. As-Built Conditions: Maintain on the construction site, one hard copy set of the following to record as-built conditions, (which record actual revisions to the work to generate final As-Built documents), including, but not limited to;

1) Drawings
2) Specifications / Project Manual
3) Addenda
4) Requests for Information (RFIs)
5) Clarifications
6) Construction Change Directives (CCDs)
7) Change orders (CO) and other modifications to the contract
8) Reviewed shop drawings, product data & samples
9) Manufacturer's instruction for assembly, installation, operation and maintenance.
10) Storm Water Pollution Prevention Plan
11) Mock ups

b. Underground Work: At the time of installation **General Contractor** shall record, to scale where possible or by figured dimensions, installed locations of all underground or concealed work, including but not limited to:

1) site work
2) field grading
2) Electrical
4) Low voltage
5) Controls

c. Site ddemolition: During demolition, record conditions of found items and/or items discovered to differ from design understanding documentation, including but not limited to:

1) Utilities & termination points
2) Line voltage cabling and conduits
3) Low voltage cabling and conduits
4) Abandoned utilities, man holes, etc.

3. Standards

a. Drawings:

1) Legibly mark and record the following kinds of actual construction (as-built) information including, but not limited to:

a) Changes made by Clarifications, RFI's, Construction Change Directives (CCD), Change Orders (CO) verbal confirmations and other modifications described in these Specifications, General Conditions, Addenda, and **Owner** accepted non-conforming work during the construction period.
b) Locations of Work buried under and outside the building, such as plumbing, gas, sewer and electrical lines and conduits.
c) Locations of significant Work concealed inside the building whose general locations have been changed from those shown on the Contract Documents.

d) Locations of items, not necessarily concealed, which have been changed with the **Owner's** prior acceptance, from the location shown on the Contract Documents.
   ii. Locate other items either by dimensions or in relation to spaces withen the site.
   iii. Note any changes to grades and or elevation changes.
   iv. Furnish additional drawings as necessary for clarification of relocated work by **General Contractor**.
   v. Record deviations from the sizes, locations, and other features of installation shown in the Contract Documents.
      a. Establish locations of underground Work by dimension to column lines or walls, locating turns, and by referenced centerline and invert elevations and rates of fall.
   vi. Indicate field changes in dimensions and detail.

e) Exact dimensioned location of all utilities underground within the construction limit lines inside and outside the building.

f) g) Locate and dimension all work including stubs for future connections, with reference to permanent landmarks or buildings and indicate depth below finish grade.

b. Project Manual / Specifications:

1) Note all manufacturers, model numbers, quantities, etc. which have been changed and/or added.
2) Legibly mark and record at each product section a description of the actual products installed, including the following:

a) Manufacturer's name, product model & number, finish & color
b) Product substitutions or alternates utilized.
c) Changes made by addenda and modifications.

4. Preliminary As-Built Documents – Review/Preliminary

a. At time of acceptance of the Work and prior to final payment, formalize the Progress As-Built Documents (drawings and specifications) kept during the course of construction to prepare and issue a "Preliminary As-Built Documents" package consisting of drawings, specifications, and other items necessary in PDF format.

1) PDF file(s) shall be supplied to **Owner** and **Architect** on a CD / DVD or uploaded to the 19six FTP site (Newforma Information Exchange).

5. Final As-Built Documents – Final Submission

a. After incorporating Owner, Architect and Project Consultants review comments and prior to final payment, formalize the Documents (drawings and specifications) to prepare a "Final As-Built Documents" package consisting of drawings, specifications, and other items necessary in PDF format.

1) PDF file(s) shall be supplied to **Owner** and **Architect** on a digital storage device.

b. Additionally, **General Contractor** will deliver one (1) hard copy of the Final As-Built Documents to the **Owner**.
c. Sign and date package of "Final As-Built Documents" and submit them to the **Owner** and **Architect** at time of final acceptance of the Work.
d. Contract shall not be deemed to be completed, nor shall final payment become due until the above requirements have been complied with.

1.5 O & M (Operation and Maintenance) MANUALS

A. General:

1. All items with moving parts shall be included in the O & M Manuals.
2. All electrical and low voltage items/devices shall be included in the O & M Manuals.
3. All HVAC components shall be included.
4. All controls shall be included.
5. All specific specification sections which require O & M Manuals shall be included.

B. Manuals shall include for each specific item, product, assembly, etc:

1. Record data, maintenance and operating instructions.

C. O&M Manuals shall be submitted to the **Architect** in hard copy format for review and comment as part of the Submittal review / Closeout process.

1. **General Contractor** shall submit initial O&M manual(s) for review and comment.
2. **Owner**, **Architect** and design team shall review manual(s) and return with comments for inclusion into final O&M manual(s).
3. **General Contractor** shall incorporate any required changes and re-submit for final review by **Architect**.
4. Upon approval, **General Contractor** will issue final O&M manuals as follows:

a. **Owner**:

1) One hard copy set
2) One DVD with the entire manual in PDF format.

b. **Architect**:

1) One DVD with the entire manual in PDF format.

D. Format:

1. PDF Document

a. General:

1) Compile all of the required data into one PDF file.
2) DF file shall include, but not be limited to:

a) Cover Sheet

i. Title: "Operation and Maintenance Manual"
ii. Project name
iii. Date
iv. General Contractor name and contact information

a. Company
b. Project manager
c. Superintendent
d. Engineer

b) Table of Contents

i. List each specification section in numerical order and embed links to each section of the PDF file.

c) Data

i. Cover Sheet for each specification section and miscellaneous scope of work not part of a specific section

a. Use and fill in herein attached Cover Page (document 01 78 00om)

ii. Operation:

a. Complete instructions regarding operation of equipment.
b. Prepare and include additional data as required for the instruction of the Owner's operating and maintenance personnel.

iii. Maintenance:

a. Complete instructions regarding maintenance of equipment, materials, etc.

iv. Parts:

a. Complete nomenclature of replaceable parts, materials, paints, etc., their part and product numbers and name, website, email and address of nearest source of parts/materials.

v. Extra material:

a. Complete list of material verified and signed by Owner.

vi. Warranty:

a. Copy of each guarantee/warranty and service contract issued for equipment, materials, work, etc.
b. It is allowed to have these come in later if their availability is affected by commissioning etc.

vii. Extraneous Data:

a. When manufacturer's catalog pages are included, clearly indicate the items included in this installation and delete or otherwise clearly indicate data which is not applicable to this installation.

viii. Training:

a. Description of training of personnel.

i) **General Contractor** to provide documentation indicating who was trained, who conducted the training and what the subject/equipment was. Refer also to applicable specification sections.

2. Hard copy manuals:
   a. Compile all the data for each specification section into multiple volumes
      1) 6" x D type, three-ring binders, in durable plastic sized for 8-1/2" x 11" with exterior slide in sleeves for cover sheets for each binder.
   b. Binders shall include, but not be limited to;
      1) Cover Sheet on front of each binder
         a) Title: "Operation and Maintenance Manual"
         b) Project name
         c) Date
         d) General Contractor name and contact information
            i. Company
            ii. Project manager
            iii. Superintendent
            iv. Engineer
         a) Volume indicated on bottom of each cover
            i. One, two, three, etc. as required to include all specifications.
      2) Table of Contents page in front of each Binder
         a) List each specification section in numerical order.
      3) Divider tabs for each division
         a) Mechanical, electrical and low voltage shall be provided in separate binders
      4) Data
         a) Cover Sheet for each specification section and miscellaneous scope of work not part of a specific section
            i. Use and fill in herein attached Cover Page
         b) Operation:
            i. Complete instructions regarding operation of equipment.
            ii. Prepare and include additional data as required for the instruction of the Owner's operating and maintenance personnel.
         c) Maintenance:
            i. Complete instructions regarding maintenance of equipment, materials, etc.
         d) Parts:

i. Complete nomenclature of replaceable parts, materials, paints, etc., their part and product numbers and name, website, email and address of nearest source of parts/materials.

e) Extra Material:

i. Complete list of material verified and signed by **Owner**

5) Warranty:

a) Copy of each guarantee/warranty and service contract issued for equipment, materials, work, etc.
b) It is allowed to have these come in later if their availability is affected by commissioning etc.
c) Extraneous Data:

i. Where contents of manuals include manufacturer's catalog pages, clearly indicate the items included in this installation and delete or otherwise clearly indicate data which is not applicable to this installation.

d) Training:

i. Description of training of personnel.

1.6 PROJECT CLOSEOUT

A. General

1. Project closeout shall be initiated by the **General Contractor**.
2. Project Closeout procedures shall comply with this section, all other specification sections, General Conditions, Division 1 and the **Owner** / **General Contractor** contract.

B. **General Contractor** shall provide and/or coordinate the following:

1. Punch Lists / Corrective Construction:

a. Restoration of damaged and defective work

1) Restore or replace, as specified or determined by the **Architect**, material and finishes damaged during construction activities at no additional expense to the **Owner**.

a) This period of time shall continue until **Owner** has taken complete occupancy unless agreed upon otherwise.

2) Restoration shall be equal to the original Work and shall match the appearance of existing adjacent Work.

a) **Owner** and **Architect** shall review for acceptance and/or rejection of remedial work.

b. Remedial work

1) Remedial Work necessary owing to faulty workmanship or materials shall add no additional expense and/or time extension to contract with **Owner**.
2) Work shall be coordinated with the **Owner** and performed at such time and in such manner to cause minimal interruption and inconvenience to the **Owner's** operations.

2. Testing, Inspections and Adjusting:
   a. Furnish a written record of test results using recording type instruments where applicable and as directed, and label everything with appropriate specification section numbers.
      1) These shall be included in O&M manual
   b. Submit required certificates of inspection.
   c. Adjust all equipment, operating devices etc. to function in accordance with their design and required operation.
      1) Adjust as directed and required per commissioning.
   d. All documentation shall be included in O&M manual.
3. California Energy Code Compliance:
   a. Observe all testing, document and complete all forms for compliance.
   b. Refer to applicable drawings and specifications and as herein specified.
   c. All documentation shall be included in O&M manual.
4. Operation, Maintenance and System Demonstration:
   a. Systems demonstration
      1) Prior to Final Inspection, furnish qualified personnel for on-the-job instruction and demonstrate operation of each system to **Owner's** Maintenance Staff.
         a) Instruct personnel in operation, adjustment, and maintenance of equipment and systems, using operation and maintenance data as basis of instruction.
         b) All training documentation shall be included in O&M manual.
      2) Refer to each specification section for additional information.
      3) Refer also to Division 1.
5. Warranties / Guarantees / Bonds:
   a. General:
      1) Manufacturer's, Contractor's and Installer's warranties notwithstanding, warrant the entire Work against defects in materials and workmanship for periods as indicated in specifications at a minimum from the date Certificate of Substantial Completion (AIA Document G704) is issued and extended as indicated in each specification section and/or as specifically noted in Division One.
         a) Guaranty/Warranty periods shall be increased in accordance with specific Specification Sections.
         b) Include this information in the O & M Manual.
      2) Guarantee/warrant or bond Work as required in the individual Specification Sections.
      3) Warranties between the **General Contractor** and manufacturers, and the **General Contractor** and suppliers, shall not affect guarantees/warranties between the **General Contractor** and the **Owner**.
      4) Review guarantees/warranties and bonds to verify compliance with Contract Documents.
      5) Compile specified bonds.

6) Compile specified guarantees/warranties using forms included in this section

a) "General Contractor Warranty/Guarantee" (See attached 01 78 00WG form)
b) "Sub-Contractor Guarantee" (See attached 01 78 00GSC form)

7) Co-execute as required.
8) Submit to the **Architect** and **Owner** for review.

a) **Owner** and **Architect** will review & issue all relative comments for **General Contractor** to address.
b) **General Contractor** will deliver guarantees/warranties and bonds to the **Owner** after incorporation of any **Architect** and **Owner** comments and acceptance of the Work.
c) These warrantees and bonds shall be included in O&M manuals.

6. Insurance:

a. Notify the **Owner** of any changes in insurance coverage requirements.

1) Especially noteworthy is the transfer from the **General Contractor's** builder's risk policy to the **Owner's** comprehensive general liability policy.

b. Provide all certificates.

7. CAL Green documentation:

a. Provide documentation as covered in Division 1 sustainability requirements and in individual sections.

8. Certificate of Occupancy:

a. Obtain this and similar releases that permit the **Owner's** full and unrestricted use.
b. In some jurisdictions, the **Owner** must obtain a certificate of occupancy or occupancy permit, as required by zoning ordinance, before occupying the project. Apply for and show compliance with all construction requirements and inspections needed to obtain the certificate of occupancy.
c. A copy of the Certificate of Occupancy shall be included in O&M manual.

9. Extra Stock and Spare parts:

a. Deliver replacement and maintenance stock of material as specified as part of each portion of work and product.
b. Deliver spare parts.
c. Itemize all materials and have **Owner** validate and sign indicating receipt of said materials.

10. Final Cleaning:

a. Refer to all specification sections and to Division 1 protection and cleaning
b. Basic cleaning:

1) General: (Interior and Exterior)

a) Upon completion of the work, remove all waste materials, debris, rubbish, tools, construction equipment and machinery and surplus material from and about the project.
b) Dispose of in a manner specified also in individual specification sections.
c) Leave Project clean and ready for occupancy
d) Thoroughly clean construction debris from all areas.
e) Use only cleaning materials recommended by manufacturer of the material and/or surface to be cleaned.

i. Ensure cleaning materials meet VOC and other associated criteria.
ii. Confine cleaning to area's only requiring the specific cleaning to protect adjacent surfaces and materials.

2)Cleaning:

1) General:

a) Perform a final complete professional cleaning service, using experienced and/or professional cleaners, for all features and trades, except as otherwise set forth in the specifications under the work of the specific trade as follows;

iii. Exterior: (Site)

a.	Plumbing fixtures:	Washed, cleaned and labels removed.
b.	Electrical equipment:	Cleaned and labels removed.
c.	Equipment:	Visible surfaces cleaned.
d.	Finishes surfaces:	Cleaned and spots, blemishes and foreign material removed.
e.	Finish Metals:	Cleaned and polished.
f.	Structural steel exposed:	Washed and cleaned without water spots.
g.	Architectural steel exposed:	Washed and cleaned without water spots
h.	Paved surfaces :	Remove debris, broom and power wash.
i.	Concrete exposed:	Remove debris, broom and power wash..
j.	Planters:	Remove debris.
k.	Lawn:	Remove debris.

c. **Owner's** Right to Clean-up:

1) Should the **Contractor** fail to perform the Basic clean-up and specified detail clean-up, the **Owner** may do so and charge the associated costs thereof to the Contractor in accordance with the General Conditions.

11. Certificates, Affidavits and Records

a. Upon completion of the Work, the **Contractor** shall submit the following to the **Architect** and **Owner**:

1) Weigh-master's affidavit for concrete as set forth in Division 1 quality control and Division 2 and 49 specification sections.
2) Record of concrete placement pours.

3) Certifications specifically indicated in individual specification sections and/or Division 1.
4) Certificates of inspection for:

ac) Electrical work

b. This documentation shall be included in O&M manual.

12. Agency related submittals

a. In addition to Submittals required by each specification section, also provide submittals as required by governing agencies, authorities and utilities and submit a final accounting of all these submittals.

1.7 SUBSTANTIAL COMPLETION:

A. The **Architect's** issuance of the punch list(s) and Certificate of Substantial Completion (AIA Document G704) establishes the date of Substantial Completion.

1. The date of Substantial Completion is the stage in the progress of the work when the work or designated portion thereof is sufficiently complete in accordance with the contract documents that the **Owner** can occupy or utilize the work for its intended use and **Owner** approves this date for issuance of certificate.

a. The **General Contractor**, when satisfied that the project is substantially complete according to the contract, shall prepare a punch list (comprehensive list of items to be completed and corrected) and submit it to the **Architect** and **Owner** along with the Contractor's Certificate of Substantial Completion.

1) Upon receipt of the **General Contractor's** editable (Excel format) Punch List and **General Contractor's** Certificate of Substantial Completion, the **Architect** and **Owner's** Representative will observe the work to determine if it is substantially compete and generate a punch list or punch lists, to be used in addition to **General Contractor's** punch list.

a) **General Contractor's** may combine the two punch lists at **Architect's** discretion.

2) The **General Contractor** shall correct items, (whether or not they are on the punch list), that the **Architect** and **Owner** find not in accordance with the contract documents.

b. If the **Architect** and **Owner** determine that the Contractor's Certificate of Substantial Completion and punch list have been issued prematurely, a "to do" list will be issued to the **General Contractor**, and an additional "final" observation and punch list issuance by the **Architect** will be required.

1) This is an unanticipated service on the **Architect's** part, and will be charged to the **General Contractor** as an additional service.

c. When the **Architect** and **Owner** feel that the work is substantially complete in accordance with design intent and construction documents, the **Architect** will issue the Certificate of Substantial Completion (AIA Document G704) along with the **Architect's** punch list.

1) The "Substantial Completion Agreement" indicates the time allowed for completion or correction of the items, the date on which the **Owner** will occupy the work or designated portion thereof, and a description of the responsibilities for maintenance, heat, utilities, and insurance.

1.8 FINAL COMPLETION

A. After the **General Contractor's** and **Architect's** punch list items are corrected and all other contract requirements have been satisfied as determined by the **General Contractor**, the **General Contractor** shall submit a request for the **Architect's** and **Owner's** final observation of the work and a final application for payment using "Contractor's Certificate of Final Completion" form.

1. The final application for payment shall be prepared in accordance with The General Conditions provided the **Architect** has received the following assurances:

a. An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the **Owner** might in any way be responsible, have been paid or otherwise satisfied.

1) **Contractor's** Affidavit of Payment of Debts and Claims shall be used for this purpose.

b. Consent of surety, if any, to final payment. If there is a surety company involved in the project, the **General Contractor** shall submit documents in accordance with the General Conditions, Consent of Surety, signed by an authorized official of the surety company.

B. The General Conditions and contract associated documents require the **General Contractor** to list specifically under "exceptions" any indebtedness or known claims that have arisen in connection with the construction contract and have not been paid or otherwise satisfied. The **General Contractor** must furnish a lien bond or indemnity bond to protect the **Owner** with respect to each exception.

C. Final payment nor any of the remaining retained percentage shall become due until the **General Contractor**, submits to the **Architect** "other data establishing payment or satisfaction of all obligations, such as receipts, and releases and waivers of liens arising out of the contract to the extent and in such form as may be designated by the **Owner**."

D. **General Contractor** shall file the "Notice of Completion" to the governing agency's Clerk.

1.9 FINAL PAYMENT

A. After the **General Contractor** submits the final application for payment supported by the documents and data required under the General Conditions, the **Architect** with the **Owner's** assistance shall make a final check to ascertain the following:

1. The work called for by the contract has been completed.
2. The **Owner's** interests have been protected with respect to the filing of liens as required by the general conditions and by the mechanics lien laws of the jurisdiction involved.
3. The accounts between the **Owner** and the **General Contractor** have been adjusted, including original contract sum, additions and deductions as included in change orders and unit prices, cash allowances, deduction for uncorrected work, and any adjustments for liquidated damages.

4. Written warranties and guarantees (such as those for roofing), as well as all certificates of inspection (such as for mechanical. Plumbing and/ or electrical work), have been delivered to the **Architect** or **Owner** as required.
6. Other conditions of the Contract have been met.
7. Once the **Architect** and **Owner** are satisfied that everything is in order, the **Architect** will issue the final certificate for payment.

1.10 CALIFORNIA ENERGY CODE COMPLIANCE

A. Comply with California Energy Code Standards.

B. Comply with California Energy Code Acceptance requirements including but not limited to;

1. The installing contractor shall act as the Acceptance Agent who shall be responsible for documenting the inspection and testing results of the acceptance requirement procedures on the Acceptance Test forms.
2. The installing contractor shall be responsible for:

a. Reviewing the plans and specifications and assure they conform with the acceptance requirements.

1) This shall be done prior to the signing of the "Certificate of Compliance"

b. Performing a construction inspection prior to testing, including all necessary instrumentation, measurement and monitoring.

1) Purchasing equipment with calibration certificates reduces the amount of required site calibration and may keep overall costs down.
2) The purpose of the construction inspection is to assure that the equipment that is installed is capable of complying with the requirements of the Standards.
3) Construction inspection also assures that the equipment is installed correctly and is calibrated.

c. Undertaking all required acceptance requirement procedures.

1) They shall be responsible for identifying all performance deficiencies, ensuring that they are corrected and again implementing the acceptance requirement procedures until all specified systems and equipment are performing in accordance with the Standards.

d. Correcting all performance deficiencies and again implementing the acceptance requirement procedures until all specified systems and equipment are performing in accordance with the standards.
e. Documenting the results of the acceptance requirement procedures including paper and electronic copies of all measurement and monitoring systems.
f. Performing data analysis, calculation of performance indices and cross-checking results with the standards.
g. Issuing a Certificate of Acceptance.

1) Building departments shall not release a final Certificate of Occupancy until a Certificate of Acceptance is submitted.

a) Certificate of Acceptance must demonstrate that the specified systems and equipment have been shown to be performing in accordance with the Standards.
b) The **General Contractor**, **Engineer of Record**, or **Owner** shall record their State of California Contractor's License number or their State of California Professional Registration License Number on each Certificate of Acceptance that they issue.

3. Observation of all testing
4. Documentation of all forms per California Energy Code and as noted on drawings.

PART 2 **- PRODUCTS**

Not used

PART 3 **- EXECUTION**

3.1 PERFORMANCE

A. All work shall be done in compliance with drawings, specifications, codes and authorities having jurisdictions.

END OF SECTION 01 78 00

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CONTRACTOR'S CERTIFICATE OF FINAL COMPLETION

OWNER

ARCHITECT

TO:

MODUS
58 2nd ST FL 4
SAN FRANCISCO, CA 94105
TEL (415) 798-0138

PROJECT:

ATTENTION: Architect: MODUS

FROM: _____
(Firm or Corporation)

This is to certify that I, _____ am an authorized official
(Name of Individual)

of _____ working in the capacity of _____ and have
(Firm or Corporation) (Role)

been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been substantially performed, and materials used and installed to date in accordance with, and in conformity to, the contract drawings, specifications, General Contractor "Punch List" and Architect's "Punch List".

The contract work is now complete in all parts and requirements, excepting the attached list of minor deficiencies and the reasons for each being incomplete to date, for which exemption from final payment requirements is requested (if no exemptions requested, write "none") _____. The work is now ready for your final inspection. The following items required from the General Contractor prior to application for final payment (such as O&M Manuals, record drawings, etc.) are submitted herewith, if any:

_____

I understand that neither the issuance by the Architect of a Notice of Completion, nor the acceptance thereof by the Owner, shall operate as a bar to claim against the General Contractor under the terms of the guarantee provisions of the contract documents.

Signature: _____

Date: _____

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SUB–CONTRACTOR GUARANTEE

GUARANTY FOR _____
(List Scope of Work)

We hereby guarantee the work which we have furnished and/or installed in the _____ project located in _____ for _____ year, but not less than listed in each specific section, from the Certified Date of Substantial Completion. We agree to repair or replace any or all such work, together with all or any other work which may be displaced in so doing, that may be defective in workmanship or material within the period from date of acceptance without expense whatsoever to the **Owner**, ordinary wear and tear and unusual abuse or neglect excepted. This guarantee shall be in addition to and not in limitation of any other warranty or remedy required by law or by the contract documents.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time after being notified in writing, we, collectively, or separately, do hereby authorize said **Owner** to proceed to have the defects repaired and made good at our expense and will pay the costs and damages therefore immediately upon demand.

Subcontractor/Material Supplier

_____
By - Title

_____
Signature

_____
Date

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O&M Manual Specification Section Cover Page

Project Name: **North Cottonwood Elementary School**
Frontage Fencing and Main Entrance Modifications

Project Address: **19920 Gas Point Road**
Cottonwood, CA 96022

Specification Section Name/Number:

Drawing Name/Number:

Scope of work description: **The scope of work of this project includes….**

Subcontractor
Company Name/Address:

Contact Name:
Phone Number:
E-mail Address:

Supplier
Company Name/Address:

Contact Name:
Phone Number:
E-mail Address:

Warranty Period: ____Years

Notes:

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GENERAL CONTRACTOR'S CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER

TO:

ARCHITECT

MODUS
58 2nd ST FL 4
SAN FRANCISCO, CA 94105
TEL (415) 798-0138

PROJECT:

ATTENTION: Architect: MODUS

FROM:_____

This is to certify that I, _____ am an authorized official of _____ working in the capacity of _____ and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been substantially performed, and materials used and installed to date in accordance with, and in conformity to, the contract drawings and specifications. A list of all incomplete work is attached (Punch list).

The General Contractor hereby releases the Owner and its agents from all claims of and liability to the General Contractor for anything done or furnished for or relating to the work, as specified in the Project Manual, except demands against the Owner for the remainder of progress payments retained to date, and unresolved written claims prior to this date.

The contract work is now substantially complete, ready for its intended use, and ready for your inspection.

Signature: _____

Date: _____

Accepted By

Firm Name: _____

Signature: _____

Date: _____

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GENERAL CONTRACTOR'S AT RISK WARRANTY/GUARANTEE

WARRANTY/GUARANTEE for

PROJECT: North Cottonwood Elementary School – Frontage Fencing and Main Entrance Modifications

We hereby warrant/guarantee that the _____
which we have provided in the _____
has been completed in accordance with the requirements of specification SECTION _____ and the Contract Documents.

We agree to repair or replace any or all of our Work, together with any other adjacent Work which may be displaced by so doing, that may prove to be defective in its workmanship or material within a period of _____ months from the date of acceptance of the above-named Project by the Owner; and we also agree to repair any and all damages resulting from such defects, all without any expense to the Owner, ordinary wear and tear and unusual abuse or neglect excepted. This period of time shall be adjusted to be a longer period as indicated in each specific specification section.

In the event of our failure to comply with the above-mentioned conditions; within sixty (60) days after being notified in writing by the Owner to proceed to have such defective Work repaired or replaced and made good at our expense, and we will honor and pay the costs and charges therefore upon demand.

Signed _____ Date
Subcontractor's name, address and license number

Countersigned _____ Date
Manufacturer's name and address

((OR))

Signed _____ Date
General Contractor's name, address and license number

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SECTION 01 79 00 – DEMONSTRATION AND TRAINING

PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Section includes: Provide equipment and systems demonstration and instruction in accordance with Contract Documents

1. Videotape seminars and system demonstrations.

1.2 RELATED SECTIONS

A. Refer to Division 1 for sustainability requirements

B. Refer to Division 1 for project coordination requirements

C. Refer to Division 1 for closeout submittal procedures

D. Refer to Division 1 for Commissioning requirements

1.3 DESCRIPTION

A. Seminar Agenda and Outline:

1. Prepare a seminar agenda and outline in consultation and cooperation with **Owner**. Include following:

a. Equipment and systems which will be included in seminars.
b. Name of companies and representatives presenting at seminars.
c. Outline of each seminar's content.
d. Time and date allocated to each system and item of equipment.

2. Submit a preliminary seminar agenda and outline for review and comment by **Owner**.

a. Revise and resubmit Agenda and outline until all seminar requirements have been satisfied and seminar dates and presenters have been finalized.

3. Submit a final seminar agenda and outline no later than eight weeks before date of Acceptance of Work.

B. Seminar organization:

1. **General Contractor's** presentation leaders shall chair seminars.

a. Coordinate qualification of training personnel, seminar contents and presentations with **Owner**.

2. Coordinate individual presentations and ensure manufacturer's representatives scheduled to be at training seminars are present.
3. Arrange for presentation leaders familiar with design operation, maintenance and troubleshooting of equipment and systems.

a. Where a single person is not familiar with all aspects of equipment or system, arrange for specialists familiar with each aspect.

4. Coordinate proposed seminar dates with **Owner** and select mutually agreeable dates.
5. Videotaping: arrange for videotaping of training seminars and system demonstrations, including seminar and demonstration questions and answers.

C. Seminar Content:

1. **Commissioning Agent** will explain design philosophy of primary systems.
2. Include following information in presentations dealing with specific systems:

a. An overview of how system is intended to operate.
b. Describe design parameters, constrains and operational requirements.
c. Describe system operation strategies.
d. Provide information to help in identifying and troubleshooting problems.

3. Include following information in presentations dealing with equipment.

a. Explanation of how equipment of how equipment operates.
b. Recommended preventative and routine maintenance.

D. System Demonstration:

1. Demonstrate operation of equipment and systems when specified in individual technical sections. Include following in demonstration.

a. Start-Up and shut down.
b. Operation.
c. Scheduled and preventative maintenance.
d. Troubleshooting.

2. Demonstration may be conducted at time of original starting with **Owner's** prior approval.

E. Seminar and Demonstration Questions:

1. Be prepared to answer questions raised by **Owner's** personnel at demonstrations and seminars.
2. If unable to satisfactorily answer question immediately, provide written response within three days.

F. Use manufacturer's operation and maintenance data as basis of instruction.

1.4 CONTRACTOR START-UP REPORT FORMS

A. Videotapes: Submit two copies of each videotape; include label on each tape and on each container identifying Project and Seminar content.

PART 2 **- PRODUCTS**
Not used

PART 3 **- EXECUTION**
Not used

END OF SECTION 01 79 00

SECTION 01 81 13 – PROJECT SUSTAINABILITY REQUIREMENTS

PART 1 **- GENERAL**

1.1 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified herein and as necessary to complete the work required by project conditions, including but not limited to as herein specified.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Code of Regulations, Title 24, Part 6.

C. Title 24, Chapter 11 – California Green Building Standards Code.

1. Non-residential new construction:

a. All occupancy types.

D. Collaborative for High Performance Schools (CHPS), www.chps.net

1.3 PERFORMANCE, TESTING AND INSPECTION

A. General:

1. Title 24, Chapter 11 – California Green Building Standards Code.

B. Standards:

1. Refer to Drawings and as herein specified.
2. **General Contractor** shall be responsible for full implementation of Construction BMP's, testing and monitoring in the project Storm Water Prevention Plan (SWPPP)

a. Plan Number: WDID [Fill in number]
b. Note: Including required reporting to the States Web site

1. https://smarts.waterboards.ca.gov/.

C. Construction Testing:

1. Refer to Drawings and as herein specified.

1.4 SUMMARY

A. This section lists requirements and procedures for compliance with certain Green Building Standards as set forth in the California Code of Regulations, Title 24 Part 11.

1.5 MEETINGS

A. Refer to Division 1 project meeting requirements.

1.6 RELATED WORK/SECTIONS

A. Related Sections include, but are not limited to:

1. Division 1
2. Division 1 substitution, deviation and/or submittal procedures
3. Division 1 Construction Waste Management and Disposal-Recycling requirements.

B. Divisions 2 through 33 Sections for sustainability requirements specific to the Work of each of those Sections.

C. **The General Contractor** shall refer to Division 1 commissioning requirements.

1.7 GENERAL REQUIREMENTS

A. The **General Contractor** shall designate an on-site field staff person to act as **the General Contractor's** Sustainability Project Coordinator for the duration of the project.

1. The **General Contractor's** Sustainability Project Coordinator shall have the following qualifications:

a. Experience on at least 2 prior projects for:

1) Preparation and implementation of Construction Waste Management Plan
2) Building Commissioning

b. The **General Contractor's** Sustainability Project Coordinator shall facilitate the implementation and documentation of all sustainability requirements assigned to the **General Contractor**, including coordination with sub-contractors on preparation of related construction submittals.

C. The **General Contractor** shall prepare a Construction Waste Management Plan and submit to the **Owner** and **Architect** within 30 days after the date of the Notice to Proceed and prior to the start of any work on site indicating how the following requirements will be met:

1. Refer to Division 1 for construction waste management and disposal/recycling requirements
2. Diversion of required percentage of construction and demolition debris from disposal in landfills and incinerators in compliance with the requirements of reference standards and as herein indicated.

a. Recycled amount:

1) 50% 75%
2) Note that diversion may include donation of materials to charitable organizations and salvage of materials on site.

b. Identify the materials to be diverted from disposal: provide an analysis of jobsite waste to be generated, including types and quantities.

1) Identify a specific area on the construction site for collection of recyclable materials.
2) Identify how and where these materials will be sorted.

3) Identify how these materials are to be diverted: provide strategies for salvage, reuse or recycling.
4) Identify where these materials will be diverted: include a list of recycling facilities to which indicated recyclable materials will be distributed for disposal.
5) Identify methodology for maintaining records of recycling efforts throughout construction process.
6) Identify construction haulers and recyclers to handle the designated materials.

c. Identify materials that are not recyclable or otherwise conservable that must be disposed of in a landfill or other means acceptable under governing State and Local regulations.
d. Indicate any instances where compliance with requirements of this section does not appear to be possible and request resolution from **Owner** and **Architect**.
e. Include participation in and procedures for recycling/re-use programs.

1) Participation in Re-Use Programs: Rebates, Tax Credits, and other savings obtained for recycled or re-used materials shall accrue to the **General Contractor**.

f. Include participation in and procedures for rebate programs.

1) Participation in Re-Use Programs: Rebates, Tax Credits, and other savings obtained for recycled or re-used materials shall accrue to the **General Contractor**.

3. Show Compliance with applicable State and Local ordinances and regulations.
4. The Construction Waste Management Plan shall be subject to review and approval by **Owner** and **Architect**.
5. Review of **General Contractor's** Waste Management Plan shall not relieve **General Contractor** of responsibility for control of pollutants and other environmental protection measures.

F. The **General Contractor** shall submit sustainability related documentation as part of construction submittals for:

1. Items defined within Division 1 sustainability requirements
2. All materials specified in Divisions 2 through 33.

1.8 CALIFORNIA GREEN BUILDING STANDARDS CODE REQUIREMENTS

A. General:

1. The **General Contractor** is responsible for maintaining all records relating to the California Green Building Standards Code sections noted herein.
2. Verification of compliance with the California Green Building Standards Code sections noted herein shall be provided by the General Contractor to the enforcing agency upon request.

B. California Building Standards Related Mandatory Measures Requirements:

1. Storm Water Soil Loss prevention Plan (Cal Green 5.106.1)

a. Requirements: For new construction projects of less than one acre, develop and implement a Storm Water soil loss prevention plan that has been designed, specific to its site, conforming to the State Storm water NPDES Construction Permit 99-08-DWQ or local ordinance, whichever is stricter, as is required for projects on acre or more. The plan

should cover prevention of soil loss by storm water run-off and/or wind erosion, of sedimentation, and/or of dust/particulate matter air pollution.

b. Requirements: Implement the Storm Water soil loss prevention plan, included in the Contract Documents, which has been designed, specific to its site, conforming to the State Storm water NPDES Construction Permit 99-08-DWQ or local ordinance, whichever is stricter, as is required for projects on acre or more. The plan covers prevention of soil loss by storm water run-off and/or wind erosion, of sedimentation, and/or of dust/particulate matter air pollution.

2. Construction Waste Reduction, Disposal & Recycling (CalGreen 5.408)

   a. Requirements:

      1) Prepare and implement the Construction Waste Management Plan as identified under Section 1.08 General Requirements. Update the waste management plan as may be required during construction.
      2) **General Contractor** shall recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent.

         a) **General Contractor** shall maintain waste haul tickets or other such records identifying the diversion rate achieved by the project.
         b) Material diversion rate shall be calculated by weight or volume, but not by both in the same project.
         c) Material diversion calculations shall exclude excavated soil and land-clearing debris.

      3) **General Contractor** shall reuse or recycle 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing. For a phased project, such material may be stockpiled on site until the storage site is developed

      4) **General Contractor** shall provide final summary of construction waste diversion to **Owner** and Building Official at the end of the project.

3. **Commissioning (CalGreen 5.410.2)**

   a. Requirements:

      1. Refer to Division 1 Commissioning requirements.

4. Finish Material Pollutant Control – Adhesives, Sealants and Caulks (CalGreen 5.504.4.1)

   a. Requirements:

      1) Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards:

         a. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits as shown in CalGreen Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene, dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified below.

b. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weight more than one pound, and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

5. Finish Material Pollutant Control – Paints and Coatings (CalGreen 5.504.4.3)

1) Requirements:

a. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in CalGreen Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in CalGreen Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Non-flat, or Non-flat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 or the 2007 California Air Resources Board Suggested Control Measure and the corresponding Flat, Non-flat or Non-flat-High Gloss VOC limit in CalGreen Table 5.504.4.3 shall apply.

b. Aerosol paints and coating shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522 (c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

PART 2 - **PRODUCTS**
NOT USED

PART 3 - **EXECUTION**

3.1 FIELD EXECTUTION OF SUSTAINABILITY REQUIRMENTS

A. The **General Contractor** is responsible for ensuring proper field execution of all sustainability requirements, communication with Subcontractor's of all requirements and submission of all documentation in a timely manner.

B. Refer also to Part 1 of this Specification Section.

3.2 CONSTRUCTION VENTILATION AND PRECONDITIONING

A. **General Contractor** shall execute the **Owner/Architect** approved Construction IAQ Management Plan.

B. Temporary Construction Ventilation: **General Contractor** shall maintain sufficient temporary ventilation of areas where materials are being used that emit VOC's, and maintain ventilation

continuously during installation, and until emissions as described below dissipate after installation. If continuous ventilation is not possible via the building's HVAC system(s) then ventilation shall be supplied via open windows and temporary fans, sufficient to provide no less than three air changes per hour.

1. **General Contractor** shall ensure that:
    a. Where odorous and/or high VOC emitting products are applied on-site, apply prior to installation of porous and fibrous materials. Where this is not possible, protect porous materials with polyethylene vapor retarders.
    b. The period after installation shall be sufficient to dissipate odors and elevated concentrations of VOCs. Where no specific period is stated in these Specifications, a time period of 72 hours shall be used.
    c. All areas shall be vented directly to outside. Areas shall not be vented to other enclosed areas.

C. During dust producing activities (e.g. drywall installation and finishing) ventilation system shall be off, and openings in supply and return HVAC system shall be protected from dust infiltration. Provide temporary ventilation as required.

D. Preconditioning: Prior to installation, **General Contractor** shall allow products which have odors and VOC emissions to off-gas in dry, well-ventilated space outside of building for 14 calendar days, in order to allow for reasonable dissipation of odors and emissions.

3.3 PROTECTION

A. Protect stored on-site and installed absorptive materials from moisture damage. Where absorptive materials not intended for wet applications are exposed to moisture, immediately remove from site and dispose of properly.

B. Protect installed materials using methods that do not support growth of molds and mildews.

C. Immediately remove from site and properly dispose of materials showing signs of mold and signs of mildew, including materials with moisture stains.

END OF SECTION 01 81 13

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SECTION 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS

PART 1 **- GENERAL**

1.1 REQUIREMENTS INCLUDED

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.

B. Coordinate the work of this Section with related trades.

C. The requirements of this section include building commissioning requirements.

D. Coordinate with Mechanical and Electrical Requirements.

1.2 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.

B. CBC Energy Code, California Code of Regulations, Title 24, Part 6, California Building Standards Commission.

C. Title 24, Chapter 11 – California Green Building Standards Code.

1. Non-residential new construction:

a. All occupancy types:

E. Collaborative for High Performance Schools (CHPS), www.chps.net

1.3 RELATED SECTIONS

A. Division 1 sustainability requirements.

B. Division 1 demonstration and training requirements.

1.4 DESCRIPTION

A. Following Definitions apply to all Contract Documents:

1. Contractor Start-Up: Sub-Phase of Contractor's work ending with Acceptance of Work, during which the Contractor performs a pre-planned program of activities including starting, testing, inspecting, adjusting, balancing and correcting Contract Deficiencies, and other similar activities.

a. During this period, the **Commissioning Agent** or their representative shall be on site to observe, inspect and identify deficiencies in system operation.

2. Completion of Start-Up: When entire work, including Contractor Start-up and Fine Tuning, except those items arising from warranty provisions of Contract Documents, has been performed to requirements of Contract Documents and is so declared, in writing, by **Commissioning Agent**.

3. Acceptance of Work: When pre-requisites to Acceptance of Work required by Contract Documents are fulfilled and Work is ready for use or is being used for purpose intended and state of work is so declared, in writing by **Owner**.

B. Commissioning Schedule

1. Provide schedules for Contractor Start-Up work.
2. Incorporate into overall construction schedule.
3. Contractor's activities, which will be performed as specified under Fine Tuning, shall be completed within 12 months from date of occupancy by **Owner**/User.

PART 2 **- EXECUTION**

2.1 CONTRACTOR START-UP REPORT FORMS

A. Prepare and submit one copy of report forms to be used in preparation of system reports for following:

B. Each system report shall include following:

1. Project Name
2. Name of system.
3. Index of report's content.
4. Manufacturer's equipment start-up reports.
5. Equipment report forms, which shall include:

a. Project name.
b. Name of equipment.
c. Observations and test results to be recorded.

C. Submittals:

1. Submit draft report forms for **Commissioning Agent's** review and comment prior to final submission. Coordinate draft submissions with **Commissioning Agent**.
2. Submit final report forms, acceptable to **Commissioning Agent** as scheduled in specifications, including but not limited to;

2.3 CONTRACT ACCEPTANCE PROCESS

A. Process for **Owner's** Acceptance of Work:

1. Acceptance of Work:

a. Fulfillment of prerequisites to Acceptance.
b. Inspection for Acceptance.
c. Issuance of Letter of Acceptance.

2.7 PARTIAL ACCEPTANCE OF WORK

A. When partial utilization of Work is required and Acceptance of Work is a condition of such partial utilization, applicable requirements specified in this Section shall apply to parts of Work to be utilized.

2.8 PREREQUISITES TO ACCEPTANCE

A. Following to be completed prior to requesting **Owner's** inspection for Acceptance.

B. Perform Contractor Start-Up Activities.

1. Remove from Project site temporary facilities as specified, along with construction tools, equipment, mock-ups and similar items.
2. Complete starting of systems and equipment as specified.
3. Complete final cleaning as specified.
4. Submit Project Record Documents as specified.
5. Submit operation and maintenance materials as specified.
6. Provide spare parts and maintenance materials as specified.
7. Submit product warranties and certificates of assurance as specified.
8. Make final changeover of locks and transmit keys to **Owner** as specified.
9. Ensure Work is ready for use for purpose intended.
10. Review Contract Documents and inspect Work to confirm that prerequisites to Acceptance of Work have been fulfilled and that Work is ready for inspection for Acceptance.

2.9 INSPECTION FOR ACCEPTANCE

A. Submit written request to **Owner** for inspection for Acceptance of Work, certifying prerequisites specified have been fulfilled and indicating known exceptions in list of items to be completed, corrected or submitted.

B. **Owner** will, within a reasonable time after receipt of Contractor's request, proceed with inspection, or advise Contractor prerequisites are not adequately fulfilled.

C. Results of **Owner's** inspection for Acceptance will form initial Contract deficiency list.

2.10 ACCEPTANCE OF WORK

A. Following inspection, **Owner** will:

1. Issue a Letter of Acceptance stating effective date of Acceptance of Work, with a copy of Contract Deficiency list attached thereto, or
2. Advise Contractor that prerequisites to Acceptance are not fulfilled and repeat inspection for Acceptance as necessary.

B. Upon Issuance of Letter of Acceptance, **Owner** will assume responsibility for care, custody and control of Work, including responsibility for:
1. Maintenance.
2. Security.
3. Property insurance.

PART 3 **- EXECUTION**
Not used

END OF SECTION 01 91 13

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SECTION 02 41 16 - SITEWORK DEMOLITION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Demolition of designated site and building components and removal of materials from site.

1.2 REGULATORY REQUIREMENTS

A. Conform to applicable codes for demolition of structures, safety of adjacent structures, dust control and disposal of materials.

B. Comply with 2022 California Fire Code (CFC), California Code of Regulations, (CCR) Title 24, Part 9, Chapter 33 - Fire Safety During Construction and Demolition.

C. Obtain required permits from authorities having jurisdiction.

D. Notify affected utility companies before starting Work and comply with their requirements.

E. Do not close or obstruct roadways, sidewalks, and hydrants without permits.

F. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

1.3 SUBMITTALS

A. Predemolition Photographs: Show conditions of existing adjacent construction and site improvements that might be misconstrued as damaged by demolition operations. Submit before Work begins.

B. Record Documents: Submit under provisions of Section 01 71 23. Accurately record locations of utilities and subsurface obstructions on Record Drawings.

C. Landfill Records: Receipt and acceptance of hazardous waste by a landfill licensed to accept hazardous waste.

1.4 QUALITY ASSURANCE

A. Demolition Firm: Experienced firm that specializes in demolition similar to extent indicated for this Project.

1.5 PROJECT CONDITIONS

A. District will occupy building(s) adjacent to demolition area. Conduct demolition so District operation will not be disrupted.

B. Provide at least 72 hours notice to District of activities that will affect District operation.

C. Maintain access to existing walkways, exits, and other adjacent occupied facilities.

D. District assumes no responsibility for sitework to be demolished.

1.6 SCHEDULING

A. Schedule Work under the provisions of Division 01.

B. Schedule Work to coincide with new construction.

a. Perform Work during normal hours of operation.

PART 2 - PRODUCTS

PART 3 – EXECUTION

3. 1 EXAMINATION

A. Correlate existing conditions with requirements indicated.

B. Inventory and record condition of items to be removed and salvaged.

C. Execute predemolition photographs.

C. Verify that hazardous waste remediation is complete.

3.2 PREPARATION

A. Provide, erect, and maintain temporary barriers and security devices under provisions of Division 01.

B. Protect existing landscaping materials, appurtenances, and structures which are not to be demolished.

C. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.

D. Mark location of utilities.

3.3 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures and occupancies.

B. Cease operations immediately if adjacent structures appear to be in danger. Notify Architect. Do not resume operations until directed.

C. Conduct operations with minimum interference to public accesses. Maintain egress and access at all times.

D. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.

E. Sprinkle Work with water to minimize dust. Provide hoses and water connections for this purpose.

F. Maintain fire safety during demolition in accordance with CFC, Article 87, Section 8706.

3.4 DEMOLITION

A. Disconnect, cap, and identify designated utilities within demolition areas.

B. Remove concrete slabs and asphalt paving.

C. Remove materials to be re-installed or retained in manner to prevent damage. Store and protect in accordance with requirements of Section 01 50 00

A. Backfill open pits and holes caused as a result of demolition.

B. Rough grade and compact areas affected by demolition to maintain site grades and contours.

C. Remove demolished materials from site and dispose of legally.

D. Do not burn or bury materials on site. Leave site in clean condition.

E. Remove temporary Work.

3.5 RECYCLING OF DEMOLITION MATERIALS

A. Separate recycled demolition materials from other demolished materials.

B. Stockpile processed materials on-site without intermixing with other materials.

C. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

D. Transport recyclable materials that are not indicated to be reused off District's property to recycling receiver or processor.

E. Recycled incentives received for site demolition materials shall be equally shared between Contractor and District.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Except for items to be reused, salvaged, reinstalled or otherwise indicated to remain, remove demolished materials from Project Site and legally dispose of them in an EPA-approved landfill.

B. Do not burn or bury materials on site.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition.

B. Return adjacent areas to condition existing before demolition operations began.

C. Leave site in a clean condition.

END OF SECTION 02 41 16

SECTION 03 10 00
CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Formwork for cast-in-place concrete, with shoring, reshoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.03 RELATED REQUIREMENTS

A. Section 03 20 00 - Concrete Reinforcing.

B. Section 03 30 00 - Cast-in-Place Concrete.

1.04 REFERENCE STANDARDS

A. Utilize the edition of the listed document as identified in the “Design Criteria Notes” in the structural drawings. If not listed in the “Design Criteria Notes”, use the edition adopted or referenced by the listed governing building code or material standard. If no specific edition is adopted, use the latest edition.
   1. ACI 117 - Specification for Tolerances for Concrete Construction and Materials.
   2. ACI 301 - Specifications for Concrete Construction.
   3. ACI 303R - Guide to Cast-In-Place Architectural Concrete Practice.
   4. ACI 318 - Building Code Requirements for Structural Concrete.
   5. ACI 347R - Guide to Formwork for Concrete.
   6. ACI 347.2R – Guide for Shoring/Reshoring of Concrete Multi-story Buildings.

1.05 SUBMITTALS

A. See Division 01 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data and installation requirements for the following:
   1. Tie rods and spreaders.
   2. Formwork for exposed concrete.
   3. Form coatings and release agents.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with all requirements of ACI 347R and ACI 318 Chapter 26.

B. Delegated Designer Qualifications: Design formwork and shoring under direct supervision of a Professional Engineer experienced in design of concrete formwork and licensed in the State in which the Project is located.

C. Concrete formwork and shores shall be designed and constructed to safely support fluid concrete and superimposed construction loads without excessive deflection or concrete leakage. Provide bracing to maintain accurate alignment and to resist all anticipated lateral loads. Forms shall conform with drawings as to shape, line, and dimension. Design, engineering, and construction of forms, shoring, and reshoring shall be the Contractor's responsibility. The Contractor shall also be responsible for determining when temporary supports, shores, reshores, backshores and other bracing may be safely removed per ACI318 26.11.2.

D. Formwork for exposed concrete shall be constructed to the tolerances specified in ACI 303R.

E. Cooperate and coordinate with other trades who furnish and/or install piping, conduit, reglets, anchors, inserts, sleeves, hangers, etc., as their work requires, including provisions for recesses and chases.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver prefabricated forms and installation instructions in manufacturer's packaging.

B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

C. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.

D. Protect plastic foam products from damage and exposure to sunlight.

PART 2 PRODUCTS

2.01 FORMWORK – GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

C. Chamfer outside corners of beams, joists, columns, and walls, unless otherwise noted.

D. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

E. Comply with relevant portions of ACI 347R, ACI 301, and ACI 318.

F. Use the following form types:
   1. Concrete not exposed to view: APA Plyform, steel, or clean and sound 1x8 sawn lumber.
   2. Smooth Concrete exposed to view: APA Plyform or steel
   3. Fiber Forms: Tubular column type spirally constructed of laminated plies of fiber
   4. Elevated Floor/Roof Slabs: At discretion of the Contractor.
   5. Extruded Polystyrene Foam: board or shaped as required.
   6. Form types for concrete exposed to view shall be submitted to and reviewed by the Architect.

2.02 WOOD FORM MATERIALS

A. Plywood: 5/8-inch minimum APA Plyform.

B. Lumber: Douglas-Fir species; Standard grade; with grade stamp clearly visible.

2.03 FIBER FORMS

A. Manufacturers:
   1. Sonoco Products Company, Sonotube.
   2. Burke Company, Burke Smoothtube.
   3. Substitutions: See Division 01 – Product Requirements.

B. Material shall be of round, spirally wound laminated fiber using a non-water sensitive adhesive and surface wax impregnated for moisture protection, surface treated with release agent, non-reusable, of sizes indicated. Forms shall give a smooth and seamless appearance to the cast concrete. Provide reveals as shown on the Drawings.

2.04 EXTRUDED POLYSTYRENE FOAM FORMWORK

A. Manufacturers: Comply with ASTM C578 type IV
   1. Dow Chemical Corp., Styrofoam.
   2. UC Industries, Foamular.
   3. Substitutions: See Division 01 – Product Requirements.

2.05 FORMWORK ACCESSORIES

A. Form Ties:
   1. Concrete exposed to view: Snap ties allowing full 1-inch back break.
   2. Concrete not exposed to view: Snap ties or wire.
   3. Verify special spacing requirements with architectural drawings at exposed concrete.

B. Form Clamps:
   1. Assembly to have cone washers allowing full 1-inch back break; 3/8” center rod.

C. Spreaders: metal (no wood)

D. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
   1. Do not use materials containing diesel oil or petroleum-based compounds. Form coating containing mineral oils or other non-drying materials will not be permitted for any concrete work.
   2. Composition: Colorless, reactive, water-based compound.
   3. Products:
      a. Kaufman Products Inc., FormKote Emulsion.
      b. Nox-Crete Inc., BIO-NOX.
      c. SpecChem, LLC, Bio Strip WB (water-based).
      d. W. R. Meadows, Inc., Duogard II (water-based).
      e. Substitutions: See Division 01 – Product Requirements.

E. Dowel Sleeves: Plastic sleeve and nailable plastic base for smooth, round, steel load-transfer dowels.
   1. Manufacturers:
      a. BoMetals, Inc.

b. Substitutions: See Division 01 – Product Requirements.

F. Filler Strips for Chamfered Corners: Rigid plastic or wood type; ¾ x ¾ inch size unless noted otherwise on the Drawings.

G. Joint tape: Plastic film tape 3 inches wide.
   1. Manufacturers:
      a. 3M Company, No. 471 plastic film tape.

H. Expansion Joint Filler (preformed): ½" thick
   1. Manufacturers:
      a. W.R. Meadows, Inc., Sealtight Fiber Expansion Joint.

I. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

J. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 12 00.

K. Waterstops:
   1. Configuration: As indicated on the Drawings.
   2. Size: As indicated on the Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions and elevations agree with drawings.

3.02 EARTH FORMS

A. Earth forms are not permitted, except as specifically indicated on approved drawings and as indicated below.
   1. Concrete footings may be poured directly against cut earth where excavations are deemed stable by a representative of the geotechnical engineer.
   2. See Structural drawings for requirements for placing concrete footings directly against earth without forms.

B. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

3.03 ERECTION – FORMWORK

A. Erect and maintain formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

B. Construct forms to sizes, shapes, lines, and dimensions shown, and to obtain accurate alignment, locations, grades, level and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of concrete.

C. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads. Ensure forms are tied, clamped, and braced to prevent spreading, shifting, or settling.

D. 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.

E. Install permanent insulated foam panel formwork per manufacturer's recommendations.

F. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

G. Align joints and make water-tight. Keep form joints to a minimum.

H. Obtain approval before framing openings in structural members that are not indicated on drawings.

I. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.

J. Coordinate this section with other sections of work that require attachment of components to formwork.

K. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect before proceeding.

3.04 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.05 CONSTRUCTION JOINTS

A. Refer to Specification 03 30 00 Section 3.05.

3.06 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.

B. Locate and set in place items that will be cast directly into concrete. All such items shall be secured into position before the concrete is placed.

C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
   1. The Contractor shall ensure that sleeves have been installed and other provisions have been made for the installation of mechanical, electrical and other equipment.
   2. Coordinate with all trades to ensure proper placement of all items in forms and to provide proper blockouts wherever required.

D. Position recessed anchor slots for brick veneer masonry anchors to spacing and intervals as required for the specified product.

E. Install accessories in accordance with manufacturer's instructions so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

F. Install waterstops in accordance with manufacturer's instructions, so they are continuous without displacing reinforcement. Heat seal joints so they are water-tight.

G. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

H. Close temporary openings with tight fitting panels flush with inside face of forms and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.07 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean and protect permanent foam panel formwork per manufacturer's recommendations.

C. Clean formed cavities of debris prior to placing concrete.
   1. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
   2. No wooden ties or blocking shall be left in concrete except where indicated for attachment of other work.

3.08 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

B. Construct permanent insulated foam panel formwork to maintain tolerances required by ACI 301.

C. Construct and align formwork for elevator hoistway in accordance with ASME A17.1.

D. Camber slabs and beams in accordance with ACI 301.

E. The Owner shall hire an independent qualified surveyor to verify the proper form, line, position, and elevation of the finished concrete work. The results of each survey shall be sent to the Owner, Architect, Engineer of Record, and Contractor and shall identify any deviation from specified tolerances. All work not in conformance with specified tolerances shall be removed at the Contractor's sole expense if so specified by the Owner.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Division 01 - Quality Requirements.

B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.
   1. Notify the Architect at least 48 hours in advance of the beginning of pouring operations and at the completion of formwork and location of all construction joints. An inspection of forms and joints will be made for approval of finished work and general layout only. The foregoing inspection shall in no way relieve the Contractor of responsibility of design and safety of formwork, bulkheads and shoring.
      a. Concrete work out of alignment, level or plumb will be cause for rejection of the whole work affected and, if so rejected, such work shall be removed and replaced, as directed by Architect, with no additional cost to the Owner.

C. Thoroughly clean and patch all holes in formwork and re-coat as required before reusing. Forms not suited to obtain concrete surfaces and tolerances in conformity with Contract requirements will be rejected by Architect.
   1. Reuse of forming materials shall be limited only as required to produce the finishes as specified, free from blemishes and other defects unless covered by other building materials in which case blemish free concrete is not required.

3.10 SHORES AND RESHORES

A. Comply with ACI 318, ACI 347.2R, and ACI 301 for design, installation, and removal of shoring and reshoring.

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. No construction loads exceeding the design live load including reduction shall be placed on any unshored portion of the structure under construction, unless analysis indicates adequate strength to support such additional loads and without impairing serviceability.

D. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.11 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
   1. Formwork and shoring shall remain in place until concrete has cured sufficiently to avoid damage during form removal. The Contractor or their representative in charge of concrete construction shall be present during removal of forms and shores and shall be personally responsible for safety of this operation at all times and under all conditions.
   2. Shores must be immediately replaced with reshores in a sequence designed to avoid inducing stress in the concrete member.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

D. Surfaces to be painted shall be smooth and free of substances such as dirt, wax, excessive laitance, grease or materials that would prevent proper bonding of finishes.
   1. Removal of foregoing contaminants and complete removal of parting and curing compounds affecting proper paint bond, shall be responsibility of this Section of Work. Sandblast cleaning shall not be employed without specific approval of Structural Engineer.

E. Upon completion of this Work, clean up and remove from Site all equipment and debris resulting from this work.

END OF SECTION 03 10 00

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.

1.02 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete and/or concrete unit masonry.

B. Supports and accessories for steel reinforcement.

1.03 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories.

B. Section 03 30 00 - Cast-in-Place Concrete.

1.04 REFERENCE STANDARDS

A. Utilize the edition of the listed document as identified in the “Design Criteria Notes” in the structural drawings. If not listed in the “Design Criteria Notes”, use the edition adopted or referenced by the listed governing building code or material standard. If no specific edition is adopted, use the latest edition.

1. ACI 117 – Specification for Tolerances for Concrete Construction and Materials
2. ACI 301 - Specifications for Concrete Construction.
3. ACI 315R - Guide to Presenting Reinforcing Steel Design Details.
4. ACI 318 - Building Code Requirements for Structural Concrete.
5. ACI SP-66 - ACI Detailing Manual.
6. ASTM A184 - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement.
7. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
8. ASTM A704 - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
9. ASTM A706 - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.
10. ASTM A767 - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
11. ASTM A775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
12. ASTM A884 - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
13. ASTM A1035 - Standard Specification for Deformed and Plain, Low-Carbon, Chromium, Steel Bars for Concrete Reinforcement.
14. ASTM A1064 - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

15. ASTM D3963 - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars.
16. ASTM E8 – Standard Test Methods for Tension Testing of Metallic Materials
17. AWS B2.1 - Specification for Welding Procedure and Performance Qualification.
18. AWS D1.4 - Structural Welding Code - Steel Reinforcing Bars.
19. CRSI (DA4) - Manual of Standard Practice.
20. CRSI (P1) - Placing Reinforcing Bars.
21. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures.

1.05 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Prepare in accordance ACI 315 and ACI SP-66 and CRSI standards. Indicate bending diagrams, assembly diagrams, splicing and laps of bars and shapes, dimensions and details of bar reinforcing and assemblies.
   1. The correctness of all reinforcing requirements and work is the responsibility of the Contractor.
      a. Identify such shop drawings with reference thereon to sheet and detail numbers from Contract Drawings.
      b. Direct copies of the contract documents are not acceptable as a submission from the Contractor.
      c. Do not use scaled dimensions from Contract Drawings in determining the lengths of reinforcing bars.
      d. No reinforcing steel shall be fabricated without approved shop drawings.
      e. Any deviations from the contract documents must be clearly indicated as a deviation on the shop drawings.
      f. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement. Include any welding to be done.
      g. Shop drawings shall make it clear where each bar is located. Beams, grade beams and walls shall be shown in elevation. On elevations show locations of sleeves and penetrations.
      h. Check architectural, structural, mechanical, and electrical and other contract documents for anchor bolt schedules and locations, anchors, inserts, conduits, sleeves, and any other items which are required to be cast in concrete, and make necessary provisions as required so that reinforcing steel will not interfere with the placement of such embedded items.
      i. Show all areas of congestion. Identify where reinforcing steel will interfere with the placement of embedded items such as anchor bolts, anchors, inserts, conduits, sleeves and any other items which are required to be cast in concrete.

C. Submit shop drawings indicating which members will use fusion welding process for assembly. Shop drawings shall show complete structural details indicating the size of stirrups, the size of holding wires, and welding requirements.

D. Submit International Code Council (ICC) Evaluation Service Reports indicating approval from ICC Evaluation Service, Inc. for mechanical splices, hooked anchorage systems, large-headed stud punching shear reinforcement and dowel bar replacement systems.

E. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
   1. Reinforcing Bars
   2. Welded Wire Fabric
   3. Welding Electrodes
   4. Fiber Reinforcement

F. Product Data:
   1. Manufacturer's specifications and installation instructions for splice devices.
   2. Bar Supports.

G. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1 and dated no more than 12 months before start of scheduled welding work.

H. Reports: Submit certified copies of mill test report of reinforcement material chemical and physical analysis.
   1. Tensile and bend tests shall be performed by the mill in accordance with ASTM A615 or A706, as applicable to reinforcing type.

I. Samples: Only as required by Architect.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.
   1. Maintain one copy of each document on project site.

B. Tests and Inspections:
   1. Provide Architect and Special Inspection Agency with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.
   2. A testing program is required prior to the start of construction. Testing program to be done in compliance with the CBC requirements and in collaboration with Testing Laboratory, Design team, contractor, owner and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in final testing program.
   3. All reinforcing steel whose properties are not identifiable by mill test reports shall be tested in accordance with ASTM A615. One Series of tests for each missing report to be borne by the Contractor.
   4. When inspections are indicated for reinforcement placement on the Structural drawings, a special inspector shall be employed to inspect reinforcing placement per CBC Chapter 17.
   5. When tests are indicated for reinforcing steel on the structural drawings, the reinforcing steel used shall be tested in accordance with ASTM A615. One tensile and one bend test for each 2-1/2 tons of steel or fraction thereof, shall be made.
   6. Inspect shop and field welding in accordance with AWS D1.4, including checking materials, equipment, procedure, and welder qualification as well as the welds. Inspector will use non-destructive testing or any other non-destructive aid to visual inspection that Inspector deems necessary to assure the adequacy of the weld.
   7. Tests and inspection shall be performed by Owners testing agency except when needed to justify rejected work, in which case the cost of retests and reinspection shall be paid by the Owner and back-charged to the Contractor.

C. Installer Qualifications:
   1. Reinforcing Steel: Installation shall be done only by an installation firm normally engaged in this business. All work shall be performed by qualified mechanics working under an experienced supervisor.

D. Manufacturer Qualifications:
   Reinforcing Steel: A firm regularly engaged in the manufacture of steel bar and welded wire fabric reinforcing.

E. Mechanical Bar Couplers shall have a current ICC-ES or IAPMO Evaluation Report that indicates compliance with the requirements of these specifications.

F. Steel Reinforcing Allowable Tolerance (ACI 117):
   1. Fabrication:
      a. Sheared length: 1 inch.
      b. Depth of truss bars: Plus or minus ½-inch.
      c. Ties: Plus or minus ½-inch.
      d. All other bends: Plus or minus 1 inch.
   2. Placement:
      a. Concrete cover to form surfaces: Plus or minus ¼-inch.
      b. Minimum spacing between bars: Plus or minus ¼-inch.
      c. Crosswise of members: Spaced evenly within 2 inches of stated separation.
      d. Lengthwise of members: Plus or minus 2 inches.
   3. Maximum bar movement to avoid interference with other reinforcing steel, conduits, or embedded items: 2 bar diameters.

G. Unidentifiable Reinforcing Steel: Tested by testing agency; paid for by Contractor:
   1. Test reinforcing delivered to site which cannot be properly identified by heat number and mill mark for compliance with ASTM A615 as follows:
      a. No. 8 Bar and Smaller: One tensile test and one bend test of each size per 7-1/2 tons, or portion thereof.
      b. No. 9 Bar and Larger: One tensile test of each size per 10 tons, or portion thereof.

H. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."
   1. Welders whose work fails to pass inspection shall be requalified before performing further welding.
   2. Firm specializing in furnishing and installing reinforcement shall have a minimum of 5 years' experience on projects with requirements similar to this project and shall have sufficient production capacity.
   3. All welding shall be performed by operators who are qualified for the types of welds used. Each operator shall have been qualified within the preceding one year as prescribed by AWS.
   4. Require welders to retake the qualification test if, as determined by the Architect, there is a reasonable doubt as to the proficiency of the welder. If the welder does not requalify, they shall not perform any welding on the project.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement
   1. Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement where occur.
   2. Deliver reinforcing to Site properly bundled and tagged. Use tags that indicate bar size, lengths and marks corresponding to markings shown on shop drawings. Bundles shall be identified as to heat number and manufacturer and be accompanied by mill and analysis test reports and affidavit from the supplier stating that the material conforms to the requirements of the ASTM specification listed therein. Segregate to maintain identification after bundles are broken.

3. Store reinforcement in a manner that will prevent excessive rusting or fouling with/ grease, oil, dirt, and other bond weakening materials.
4. Do not use damaged, reworked, or deteriorated material.

B. Deliver and store welding electrodes in accordance with AWS D1.4.

PART 2 PRODUCTS

2.01 STEEL REINFORCEMENT

A. All deformed bars shall conform to ACI 318 Section 20.2.1.3 in addition to referenced ASTM requirements. Where required, uniform elongation shall be determined as the elongation at the maximum force sustained by the reinforcing bar test piece per ASTM E8.

B. Reinforcing Steel: ASTM A615, Grade 60 (60,000 psi) deformed for all bars unless otherwise indicated.
1. Plain billet-steel bars where indicated.
2. Unfinished.

C. Reinforcing Steel: ASTM A706, Grade 60 (60,000 psi) deformed low-alloy steel bars for bars to be welded.
1. Unfinished.

D. Reinforcing Steel: Dual grade ASTM A615/A706, Grade 60 (60,000 psi) may be used in lieu of A615 or A706, Grade 60 (60,000 psi).
1. Unfinished.

E. Reinforcing Steel: ASTM A706, Grade 60 (60,000 psi) for bars used in special seismic systems as indicated in drawings.
1. Unfinished.
2. ASTM A615 Grade 60 bars meeting the following requirements of ACI 318 may be used in lieu of A706 Grade 60 in special seismic systems.
    a. Actual yield strength based on mill tests does not exceed more than 78,000 psi.
    b. The ratio of the actual tensile strength to the actual yield strength is at least 1.25.
    c. Minimum fracture elongation in 8 in. shall be at least 14% for bar sizes #3 through #6, at least 12% for bar sizes #7 through #11, and at least 10% for bar sizes #14 and #18.

F. Minimum uniform elongation shall be at least 9% for bar sizes #3 through #10, and at least 6% for bar sizes #11 through #18.reinforcing Steel: Plain or deformed bars; ASTM A1035, Grade 100 (100,000 psi), Type CL.

G. Stirrup and Tie Steel: ASTM A615 grade 60 for all bars, unfinished.

H. Reinforcing steel used as spiral reinforcing as noted on the drawings shall conform to ASTM A615 unless noted otherwise.

I. Deformed Bar Anchors: AWS Type D studs manufactured in conformance with ASTM A 496 with a minimum tensile strength of 80,000 PSI. ASTM A 615 reinforcing bars may not be substituted for deformed bar anchors. Reinforcement shall be approved by the ICC-Evaluation Service, Inc and shall have the Evaluation Service Report submitted for Engineer review. The following are acceptable products, provided that their Evaluation Service Reports are still valid at the time of intended use on the project:
1. Nelson Stud Welding, Inc.; Nelson D2L Deformed Bar Anchor Studs (ESR-2907).
2. Tru-Weld Division, TFP Corporation; Deformed Bar Anchors (ESR-2823).

J. Epoxy-Coated Reinforcing Steel: Provide epoxy coated reinforcing bars at the locations indicated on the drawings. Epoxy coated reinforcing bars shall conform to ASTM A 775. Bars that are to be epoxy coated shall conform to the type of steel required for the given situation as noted on the drawings.

K. Steel Dowels: Same grade as bars to which dowels are connected.

L. Steel Welded Wire Reinforcement (WWR): Plain type; ASTM A1064 with a yield strength of 65,000 psi. Provide flat sheets only. Spacing and size of wire as indicated in drawings.

M. Reinforcement Accessories:
   1. Tie Wire: FS-QQ-W-461, annealed, minimum 16-gauge, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
      a. Wire support: CRSI class 2.
      b. Do not use wood, brick, or other objectionable materials.
      c. Do not use galvanized supports.
      d. Supports placed against ground: Pre-cast concrete blocks not less than 4 inches square with embedded wire.
   3. Provide stainless steel components for placement within 1-1/2 inches of weathering surfaces.

N. Welding Electrodes: AWS D1.4, low hydrogen, E70XX series.

O. Headed Steel Stud Punching Shear Reinforcement: Punching shear reinforcement using headed studs welded to flat bars shall be manufactured in conformance with ASTM A 1044 and approved by the ICC Evaluation Service, Inc. as expressed in an ICC Evaluation Report for use as punching shear reinforcement for slabs and footings designed in accordance with ACI 421.1.
   1. Studs
      a. Nelson Stud Welding Inc.; Nelson Punching Shear Resistor Studs (ESR-1170).
      b. Tru-Weld Division, TFP Corporation; Tru-Weld Punching Shear Resistor Studs (ESR-2822).
   2. Assemblies
      a. Dayton Superior Corporation; Dayton Shear Resistance System (ESR-2696).
      b. Decon, Inc.; Decon Studrails (ESR 2494).
      c. Dywidag Systems International USA, Inc.; Dywidag Shear System (ESR-2534).
      d. Jobsite Stud Welding, Inc.; Jobsite Stud Welding Punching Shear Resistor Shear Rail Assemblies (ESR-3264).
      e. Simpson Strong-Tie Company, Inc.; Simpson Strong-Tie Punching Shear Resistor Rail (ESR-2992).
      f. SRL Industries LTD.; SRL Punching Shear Resistor Shear Rails (ESR-2938).

P. Hooked Anchorage Replacement: Reinforcing bar terminations shall be manufactured out of ASTM A 576, ASTM A 615, or A 706 material and shall develop the full tensile strength of the bar when installed at the manufacturer's recommended depth.
   1. The anchorage shall be approved by the ICC Evaluation Service Inc. as expressed in an ICC Evaluation Service Report which shall be submitted for review.
   2. The following are acceptable products (for use only with grade 60 bars), provided that their Evaluation Service Reports are still valid at the time of intended use on the project:
      a. Dextra Manufacturing Co., Ltd; Bartec Mechanical Anchorages for Steel Reinforcing Bars in Concrete (ESR-2166).
      b. Headed Reinforcement Corporation; HRC 555 Headed Reinforcing Bars (ESR-2935).
      c. Erico Products, Inc.; Lenton Terminator (ER-3967).

2.02 REINFORCING BAR SPLICING:

A. Coupler Systems: Mechanical devices for splicing reinforcing bars; Comply with ACI 318 Chapter 25.
   1. Mechanical splices shall conform to Type 1 or Type 2 splices. Where not specifically indicated, use type 2 splices.
      a. Type 1 splice shall develop, in tension and compression, 1.25 times the specified yield strength of the splice bar.
      b. Type 2 splice shall meet the requirements of Type 1 splice and, in addition, develop the full tensile strength of the splice bar.
      c. Splices shall be approved by the ICC-Evaluation Service, Inc and shall have the Evaluation Service Report submitted for Engineer review.
   2. Manufacturers:
      a. Headed Reinforcement Corporation (HRC)
      b. nVent Lenton
      c. Dayton Superior Corporation
      d. Splice Sleeve North America, Inc; NMB Splice Sleeve System
      e. Substitutions: See Division 01 - Product Requirements.

B. Form Savers: Mechanical devices for connecting dowels and reinforcing bars at construction joints; capable of developing full steel reinforcing design strength in tension and compression.
   1. Manufacturers:
      a. nVent Lenton
      b. Substitutions: See Division 01 - Product Requirements.

C. Taper Tie Hole Plug: Mechanical device for plugging tie holes; anchors optional flush or recessed grout.
   1. Manufacturers:
      a. Dayton Superior Corporation
      b. Substitutions: See Division 01 - Product Requirements.

D. Grout: Cementitious, non-metallic, non-shrink grout for use with manufacturer's grout sleeve reinforcing bar coupler system.
   1. Manufacturers:
      a. Dayton Superior Corporation
      b. Substitutions: See Division 01 - Product Requirements.

2.03 FIBER REINFORCEMENT

A. See specification section 03 30 00.

2.04 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice and to meet requirements of Drawings.

B. Fabricate reinforcement in accordance with the requirements of ACI 315R where specific details are not shown or where Drawings and Specifications are not more demanding.

C. Steel reinforcement shall not be bent or straightened in a manner that will injure the material. Bars with kinks or bends not shown on the Drawings shall not be used. Heating of bars for bending will not be permitted.

D. Reinforcing shall not be field bent or straightened without structural engineer’s review.

E. Provide offsets in rebar (1:6 maximum) where required to maintain clearances.

F. Fusion welding of preassembled cages shall be permitted only under the following conditions:
   1. Fusion welding of holding wires to ties, stirrups, and hoops in beams, columns, and grade beams to preassemble reinforcing cages is permissible. The holding wire area shall not exceed 5% of the beam, column, or grade beam cross sectional longitudinal steel area. Fusion welding is not allowed to longitudinal reinforcing steel in any beam, column, or grade beam.
   2. Fusion welding of holding wires to the ends of the reinforcing steel placed in mats (spread footings, slab reinforcement, etc.) is permitted provided the fusion weld occurs within 6 bar diameters of the free end of the bar (e.g. no allowed at the end of coupled, T-headed, or weld splice bars).
   3. Fusion welding of holding wires shall not occur on a bent portion of a reinforcing bar. Bars may not be bent where a fusion weld occurs.
   4. Holding wires shall conform to ASTM A496.
   5. All reinforcing steel to be welded shall comply with ASTM A706.
   6. Submit complete structural plans indicating which members will use fusion welding process for assembly. Provide complete structural details indicating the size of stirrups and holding wires and welding requirements. Submit a complete shop welding program which includes the following:
      a. Type of the specific fusion welding machine
   7. Periodic inspection protocol of the in-plant welding. This information shall be submitted to the Structural Engineer (SEOR) and the Owner's Testing Agency for approval. Fusion welding and fabrication is not permitted until approved by the SEOR.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from the required position. All reinforcement shall be accurately set in place, lapped, spliced, spaced rigidly and securely held in place and tied with specified wire at all splices and crossing points. All wire tie ends shall point away from the form. Carefully locate all dowel steel to align with wall and column steel.
   1. Comply with CRSI recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports and as herein specified.
   2. Bars shall be in long lengths with laps and splices as shown. Offset laps in adjacent bars. Place steel with clearances and cover as shown. Bar laps shall be as indicated on the Drawings. Tie all laps and intersections with the specified wire.
   3. For horizontal reinforcement, maintain clear space between parallel bars not less than 1 times nominal reinforcement diameter, but in no case shall clear space be less than 4/3 times maximum size concrete aggregate.
   4. For vertical reinforcement, maintain clear space between parallel bars not less than 1-1/2 times nominal reinforcement diameter, but in no case shall clear space be less than 4/3 times maximum size concrete aggregate.
   5. Reinforcing dowels for slabs shall be placed as detailed. Sleeves may be used if reviewed by the Structural Engineer before installation. Install dowel through all construction and expansion joints for all slabs on grade. Support slab-on-grade joint dowel bars independently of support for slab reinforcement on soil supported slab bolsters or specially manufactured cradles such that dowel bar remains parallel to slab surface and at right angles to joint during concreting operations. Lightly coat the exposed end of the dowel

with a paraffin-base lubricant, asphalt emulsion, form oil, or grease or use a dowel bar sleeve.

6. Provide and place additional reinforcing steel at all sleeves and openings in beams, slabs, and walls as specified on the drawings. Where sleeves or openings not shown on the drawings interrupt the reinforcement, consult with Engineer for instructions for placing and splicing of bars. Provide the required additional reinforcing steel at no additional cost to the Owner.
7. Epoxy-Coated Reinforcement: Use epoxy-coated steel tie wires to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963.
8. Do not bend reinforcement that is embedded partially in concrete except in locations noted on the drawings, specifications, or approved by the Engineer.

B. Reinforcement in Composite Metal Deck Slab
   1. Composite steel deck slabs shall be reinforced as indicated on the drawings.
   2. Extra Reinforcement over Girders: Provide additional reinforcing steel over interior girders as shown on the drawings.
   3. Placement of Slab Reinforcement: Provide bolsters, high chairs, and/or additional reinforcing as shown in details on the drawings to support the reinforcing with the clear cover shown on the drawings.

C. Reinforcement in Topping Slabs
   1. Provide welded smooth wire reinforcement minimum 6 x 6 W1.4 x W1.4 in all topping slabs unless specified otherwise on the drawings.

D. Bar Supports: Support and securely fasten bars with chairs, spacers and ties to prevent displacement by construction loads or placement of concrete beyond the tolerances specified. Conform to CRSI as a minimum standard.

E. Steel Adjustment:
   1. Move within ACI 117 specified allowable tolerances to avoid interference with other reinforcing steel, conduits, or embedded items.
   2. Do not move bars beyond allowable without concurrence of Structural Engineer.
   3. Do not heat, bend, or cut bars without concurrence of Structural Engineer.
   4. Reinforcement shall not be bent after being embedded in hardened concrete.

F. Splices:
   1. Provide splices as indicated on the drawings. Splice reinforcing bars only at locations shown on the structural drawings and approved shop drawings. Unauthorized or unscheduled splices not approved by the Engineer in writing will not be accepted.
   2. All lap splices in reinforcing steel shall be contact lap splices unless detailed otherwise on the drawings.
   3. Maintain proper cover and spacing between reinforcing bars at splices.
   4. Lap unscheduled reinforcing bars not otherwise specified with a Class B lap splice.
   5. Lap Splices: Tie securely with wire to prevent displacement of splices during placement of concrete.
   6. Mechanical Splice Devices: Install in accordance with manufacturer's written instructions. Obtain Structural Engineer’s review before using. The manufacturer of mechanical splice shall be present for first day’s installation.
   7. Do not splice bars except at locations shown without concurrence of Structural Engineer.
      a. Where splices in addition to those indicated are required, indicate location on shop drawings clearly and highlight "for Engineer’s approval".

G. Repair of Epoxy-Coated Reinforcing: Repair cut and damaged epoxy coatings on fabricated reinforcing before delivery with epoxy repair coating according to ASTM D 3963.

H. Do not displace or damage vapor barrier.

I. Accommodate placement of formed openings.

J. Refer to Structural Drawings for concrete cover requirements over reinforcement.

K. Concrete shown without reinforcing shall be reinforced as similar parts shown with reinforcing except where concrete is specifically noted to be unreinforced.

L. Examine surfaces and conditions receiving or affecting the work. Do not proceed until unsuitable conditions have been corrected.

M. Welding:
   1. Welding is only permitted where specifically detailed on Drawings or approved by Engineer.
   2. Employ shielding metal-arc method and meet requirements of AWS D1.4.
   3. Welding is not permitted on bars where the carbon equivalent is unknown or is determined to exceed 0.55.
   4. Welding shall not be done within two bar diameters of any bent portion of a bar which has been bent cold.
   5. Tack welding of reinforcement is not permitted, unless specifically requested by the Contractor and approved by the Structural Engineer of Record.
   6. Welding of crossing bars is not permitted.

N. Welded Wire Fabric: Install in long lengths, lapping 24 inches minimum at end splices and two mesh spacings minimum at side splices. Offset laps in adjacent widths. Place fabric in approximately the middle of the slab thickness unless shown otherwise on the Drawings by dimension. Wire tie lap joints at 12-inch centers. Use concrete blocks or chairs to support mesh in proper position.

O. Reinforcement shall be free of mud, oil or other materials that may reduce bond at the time concrete is placed. Reinforcement with tightly adhered rust or mill scale will be accepted without cleaning provided that rusting has not reduced dimensions and weights below applicable standards. Remove loose rust.

P. Protection against rust:
   1. Where there is danger of rust staining adjacent surfaces, wrap reinforcement with impervious tape or otherwise prevent rust staining.
   2. Remove protective materials and clean reinforcement as required before proceeding with concrete placement.

Q. Refer to notes on Drawings for additional reinforcement requirements.

R. Refer to Mechanical and Electrical Drawings for formed concrete requiring reinforcing steel. All such steel shall be included under the work of this Section.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Division 01 - Quality Requirements, will inspect installed reinforcement for compliance with contract documents before concrete placement.

B. Reinforcing Steel
   1. Notify the testing agency and the Architect at least 48 hours before concrete is to be poured or reinforcing is covered up.
   2. Before any concrete is poured on any portion of the building, the reinforcing steel and form dimensions will be inspected by the Testing Agency. Any errors or discrepancies shall be corrected before concrete is placed.

3. A testing program is required prior to the start of construction. Testing program to be done in compliance with the CBC requirements and in collaboration with Testing Laboratory, Design team, contractor, owner and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in the final testing program.
4. All reinforcing steel whose properties are not identifiable by mill test reports shall be tested in accordance with ASTM A615. One Series of tests for each missing report shall be made and costs shall be borne by the Contractor.
5. When tests are indicated for reinforcing steel on the structural drawings, the reinforcing steel used shall be tested in accordance with ASTM A615. One tensile and one bend test for each 2-1/2 tons of steel or fraction thereof, shall be made.
6. In addition to other required inspections, the following are subject to Special Inspection as per the CBC:
   a. Placement of Reinforcing Steel
   b. Welding of Reinforcing Steel
7. A special inspector from the Testing Agency shall be present during all field bending of reinforcement.
8. Installation of deformed bar anchors to be tested in accordance with Section 7.1 of AWS D1.1.
9. Welding of Reinforcement: There shall be continuous inspection during all welding of reinforcement. All butt welds are to be inspected using radiographic testing. At the Owner's option, recognized non-destructive tests such as resistance, Magnetic Particle Examination, and Liquid Penetrant Inspection may be used to inspect the welds. Inspect shop and field welding in accordance with AWS D1.4, including checking materials, equipment, procedure, and welder qualification as well as the welds. The inspector will use non-destructive testing or any other aid to visual inspection that he deems necessary to assure the adequacy of the weld.
10. Comply with ICC-ES or IAPMO approvals with respect to special inspection required during installation.
11. Testing and inspection of mechanical splices and reinforcing couplers to conform to manufacturer's recommendations and ICC-ES or IAPMO approval.

END OF SECTION 03 20 00

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.

1.02 SECTION INCLUDES

A. Cast-in-place concrete building elements.
B. Concrete for composite floor construction.
C. Elevated concrete slabs.
D. Slabs on grade.
E. Concrete foundations.
F. Grouting of steel base plates.
G. Joint devices associated with concrete work.
H. Concrete curing.

1.03 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories.
B. Section 03 20 00 - Concrete Reinforcing.

1.04 REFERENCE STANDARDS

A. Utilize the edition of the listed document as identified in the “Design Criteria Notes” in the structural drawings. If not listed in the “Design Criteria Notes”, use the edition adopted or referenced by the listed governing building code or material standard. If no specific edition is adopted, use the latest edition.
   1. ACI 117 - Specification for Tolerances for Concrete Construction and Materials.
   2. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
   3. ACI 211.2 – Standard Practice for Selecting Proportions for Structural Lightweight Concrete.
   4. ACI 301 - Specifications for Concrete Construction.
   5. ACI 302.1R - Guide to Concrete Floor and Slab Construction.
   6. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
   7. ACI 305R – Guide to Hot Weather Concreting.
   8. ACI 306R – Guide to Cold Weather Concreting.
   9. ACI 308R - Guide to External Curing of Concrete.
   10. ACI 318 - Building Code Requirements for Structural Concrete.
   11. ACI 360R – Guide to Design of Slabs-On-Ground.
   12. ASTM C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field.

13. ASTM C33 - Standard Specification for Concrete Aggregates.
14. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
15. ASTM C42 – Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
16. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
17. ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
18. ASTM C138 – Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
19. ASTM C143 – Standard Test Method for Slump of Hydraulic Cement Concrete.
20. ASTM C150 - Standard Specification for Portland Cement.
21. ASTM C172 – Standard Practice for Sampling Freshly Mixed Concrete by the Volumetric Method.
22. ASTM C192 – Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
23. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
24. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
25. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
26. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
27. ASTM C567 – Standard Test Method for Determining Density of Structural Lightweight Concrete.
28. ASTM C595 – Standard Specification for Blended Hydraulic Cements.
29. ASTM C618 – Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
30. ASTM C685 – Standard Specification for Volumetric Batching and Continuous Mixing.
31. ASTM C989 – Standard Specification for Slag Cement for Use in Concrete and Mortars.
32. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete.
33. ASTM C1157 – Standard Performance Specification for Hydraulic-Cement.
34. ASTM C1582 - Standard Specification for Admixtures to Inhibit Chloride-Induced Corrosion of Reinforcing Steel in Concrete.
35. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
36. ASTM E3121 – Standard Test Methods for Field Testing of Anchors in Concrete or Masonry.

1.05 SUBMITTALS

A. See Division 01 - Administrative Requirements for submittal procedures.

B. General:
   1. Review of submittals is of a general nature only, and the responsibility for conformance with intent of drawings shall remain with the Contractor. Review does not imply or state that the fabricator has correctly interpreted the construction documents.
   2. All submissions shall be in accordance with the submission schedule developed and agreed between the Architect and Contractor at the commencement of the project. Submission shall include dates of order and delivery of materials to the shop and the site.
   3. Shop drawing schedule shall allow adequate time for reviews. Reinforcing steel shall not be fabricated or placed before the shop drawings have been reviewed by the Architect and returned.

C. Concrete Design Mixtures: Each concrete mix design to be used on the project shall be reviewed and approved by the Testing Agency prior to concrete being delivered to site. Owner's Testing Agency shall review all mix designs prior to submittal. Submit proposed mix designs for each class of concrete listed on drawings. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
   1. For each concrete mixture, the following information shall be included: where the mix is to be used, all materials and admixtures including their source and proportions in the mix; Water content, water-to-cement ratio, slump, and aggregate grading; whether the mixture is appropriate for pumping; and total chloride content.
   2. Provide shrinkage test results for mixes with shrinkage criteria showing that mix meets performance criteria. The mix design number must match with the mix design number shown on the test data.
   3. Indicate compressive strength and method used to determine strength. The compressive strength of the concrete shall be proportioned per ACI. Include all calculations and tests required by ACI 318 Chapter 5. Laboratory test data must be submitted along with calculations that show each mix design meets the strength requirement. Mix design number must match the mix design number shown on the test data. Include all test results or past history back up data specific as part of the submittal. Test results within the past two years shall be used to indicate performance in accordance with past history.
   4. Indicate amounts of mixing water to be withheld for later addition at Project site.
   5. Each mix shall be stamped and signed by a Professional Engineer licensed in the State of California with experience in concrete mix design.

D. Transit-mix delivery slips.
   1. Keep record at the Site showing time and place of each pour of concrete, together with transit mix delivery slip certifying contents of the pour per ASTM C94. Include the time water was added to dry mix.
   2. Make the record available for inspection at the Site and to the Architect for his review upon request.
   3. Upon completion of this portion of the Work, deliver the record and the delivery slips to the Architect.

E. Reinforcement: Comply with submittal requirements in Section 03 20 00.

F. Formwork and Shoring: Comply with submittal requirements in Section 03 10 00.

G. Layout drawings for construction, control, and expansion joints for Engineer and Architect review.

H. Certificates of Compliance from manufacturer or supplier:
   1. Material Test Reports:
      a. Cement Certificates per CBC Chapter 17.
         1) Cement without a certificate shall not be used.
      b. Aggregates: Material test reports for the following, from a qualified testing agency, indicating compliance with requirements:
         1) Light weight aggregate (per ASTM C330).
         2) Normal weight aggregate (per ASTM C33). Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity. Include evaluation of reactivity.
   2. Product Test Reports and Certificates: Include ICC-ES or IAPMO reports where available. Provide for each of the following, signed by manufacturers.:
      a. Cementitious materials, per ASTM C150, ASTM C595, ASTM C618, ASTM C989, and/or ASTM C1240, as applicable.

b. Admixtures. Where more than one admixture is used, include certification that admixtures are compatible. Per ASTM C494 for each type used; include chloride ion content.
c. Fiber reinforcement.
d. Curing compounds. Also include data on method of removal in the event of incompatibility with floor covering adhesives.
e. Floor and slab treatments.
f. Non-shrink grout, per ASTM C1107 Grade B.
g. Bonding agents.
h. Vapor retarders.
i. Semirigid joint filler and joint-filler strips
j. Waterstops.
k. Post-installed concrete anchors.
l. Repair materials.

I. Hardeners and sealers: Provide manufacturer's data.

J. Grout samples for sacked surface textures and colors upon Architect's request only.

K. Field quality-control test and inspection reports.

L. Sustainable Design Submittals:
1. If any fly ash, ground granulated blast furnace slag, silica fume, rice hull ash, or other waste material is used in mix designs to replace cement, submit a letter indicating the total volume of concrete cast in place, mix design(s) used showing the quantity of cement replaced, reports showing successful cylinder testing, and temperature on day of pour if cold weather mix is used.
2. Submit environmental assessment report for concrete mix. Compare concrete mix submitted with a conventional or reference concrete mixture that meets the specified performance requirements. Include:
a. Energy consumption.
b. Emissions.
c. Potential toxicity.
d. Potential risk.
e. Raw material consumption.
f. Land use.
g. Third-party validation of comparison methodology.
3. MSDS or product data showing VOC content data for concrete curing compounds, admixtures and form release agents used in concrete poured interior to the waterproofing membrane. Demonstrate compliance with California Air Resources Board (CARB), Architectural Coatings Suggested Control Measure 2008 and VOC emissions data in compliance with the California Department of Public Health Standard Method v1.1–2010, data must show exposure scenario, and range of VOC's after 14 days.
4. MSDS or product data showing VOC content data for sealants used interior to the waterproofing membrane. Demonstrate compliance with the South Coast Air Quality Management District (SCAQMD) Rule 1168 AND VOC emissions data in compliance with the California Department of Public Health Standard Method v1.1–2010, data must show exposure scenario, and range of VOC's after 14 days.

M. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318 and applicable standards listed in the Reference Standards section.
   1. Maintain one copy of ACI 301 and ACI 318 on site.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

D. For slabs required to include moisture vapor reducing admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement except when waived by owner.

E. For slabs indicated to receive membrane-forming, moisture emission-reducing, curing and sealing compound, do not proceed with application unless manufacturer's representative is present for every day of placement except when waived by owner.

F. Installer Qualifications:
   1. Concrete: A qualified installer who employs Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

G. Manufacturer Qualifications:
   1. Concrete: A firm experienced in manufacturing ready-mixed concrete products that complies with ASTM C94 requirements for production facilities and equipment.
      a. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

H. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 for testing indicated, as documented according to ASTM E548.
   1. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
   2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. The Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
   3. Shop and field testing and inspection of steelwork shall be performed by an inspector currently certified as an AWS Certified Welding Inspector.

I. Testing Agency: Shall be selected and paid for by the Owner, unless otherwise specified; re-testing paid for by the Contractor.

J. Contractor’s Quality Control Plan: Quality Control includes the functions performed by the Contractor to ensure that the material and workmanship of concrete construction meets the project specifications and applicable standards. The Contractor shall submit a Quality Control Plan that addresses all inspection issues, including testing and inspection per ACI. The verification testing and inspection carried out by the Testing Agency does not relieve the contractor of the responsibility for conducting their own quality control/inspection program to ensure the requirements of the Contract Documents have been met. The Contractor’s Quality Control Plan will be reviewed by the Testing Agency.

K. Quality Control Inspector Qualifications: Along with Quality Control Plan, Contractor shall submit written qualifications for all inspectors to be assigned Quality Control functions for concrete work.

L. Source Limitations: 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.

M. Mechanical Bar Couplers shall have a current ICC-ES or IAPMO Evaluation Report that indicates compliance with the requirements of these specifications.

N. Steel Reinforcing Allowable Tolerances: Comply with ACI 117 and requirements in Section 03 20 00.
   1. Refer to Section 03 20 00.

O. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to test concrete mixtures. When mixes are proportioned by trial batch method, engage a Laboratory conforming to ASTM E329 and under direction of a Professional Engineer licensed in the State in which the Project is located.

P. Formwork:
   1. See Section 03 10 00.

Q. Prefabrication and Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.
   1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
      a. Contractor's superintendent.
      b. Independent testing agency responsible for concrete design mixtures.
      c. Ready-mix concrete manufacturer.
      d. Concrete subcontractor.
   2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

R. Tests and Inspections:
   1. Provide special inspections and testing as described in the “Statement of Structural Special Inspections and Testing” within the structural drawings, and/or TIO form, and as required by this section.
   2. A testing program is required prior to start of construction. Testing program to be done in Compliance with the CBC requirements and in collaboration with Testing Laboratory, Design team, contractor, owner and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in final testing program.
   3. The following tests shall be made by a recognized testing laboratory selected by the Owner and approved by the governing agency. All tests shall be in accordance with the previously mentioned standards and ACI 318 Section 26.12. A complete record of all tests and inspections shall be kept per CBC Section 1704.5.
      a. Compressive Strength: Make and cure in accordance with ASTM C-31. Test in accordance with ASTM C-39 and ACI 318 Section 26.12. Standard cure testing shall be utilized. Supplementary field cure testing shall occur where required by SEOR and/or AHJ.
         1) A record shall be made of time and of locations of concrete from which samples were taken.

2) A minimum of five identical cylinders shall be taken from each pour of 50 cubic yards or 2000 square feet or part thereof, being placed each day per ACI 318 Section 26.12.2. One cylinder shall be tested at age 7 days, and a minimum of three at age 28 days unless otherwise specified. Preserve a minimum of one remaining cylinder for future use.

b. Drying Shrinkage: (applies always for lightweight concrete; also applies for other mixes if specified as such in drawings or specifications).
   1) A record shall be made of time cylinders and of locations of concrete from which samples were taken.
   2) Three identical 4" x 4" x 11" specimens shall be made from same concrete as used in structure. Percent of shrinkage shall be reported at 21 days after 7 day moist curing period. Average results of 3 specimens shall be used as the accepted value. The value for laboratory cast specimens shall not exceed .075%. If field test specimens are used in lieu of laboratory specimens, a tolerance of +33% may be used.
   3) Test specimens in accordance with ASTM C157.

c. Concrete consistency (slump) shall be tested in accordance with ASTM C143.

4. Provide full time inspection per CBC Section 1705.3 during the taking of test specimens and during the placing of all concrete and embedded steel.
5. See Section 03 20 00 for reinforcing steel tests and inspections.
6. Provide continuous concrete batch plant inspections for compliance with ASTM C685.
   a. Continuous batch plant inspection may be waived per CBC 1705A.3.3.1.

1.07 DELIVERY, STORAGE AND HANDLING

A. Steel Reinforcement:
   1. See Section 03 20 00.

B. Deliver and store welding electrodes in accordance with AWS D1.4.

C. Formwork: Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

D. Concrete Materials:
   1. Protect cement from moisture and rotate stock to ensure fresh materials.
   2. Protect aggregates as necessary to maintain saturated condition when batched.
   3. Storage methods should comply with ACI 301 4.1.4.

E. Contractor to coordinate with owner and/or testing laboratory to provide facilities for job curing of test cylinders and transporting to Testing Laboratory.

F. Comply with all local building and fire codes for fire safety during construction.

PART 2 PRODUCTS

2.01 CONCRETE MIXES

A. Concrete mixes shall be as stated in the Structural Documents with strength, maximum aggregate size, weight, maximum water to cement ratio, and location of usage.
   1. Cement content as required by mix design (ACI 318 Section 26.4.3).
   2. Admixtures: Water Reducing
   3. Weight
      a. Normal Weight Concrete (NWC): 150 lbs. per cubic foot maximum
   4. Air Entrainment
      a. As required for UL rating (4%-7% for LWC)
      b. As required for Durability Requirements per ACI 318 Chapter 19
      c. As required in Construction Documents

2.02 FORMWORK

A. Comply with requirements of Section 03 10 00.

2.03 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 03 20 00.

2.04 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
   1. Portland Cement: ASTM C150, Type II, II/V, Type V. One brand of cement shall be used throughout to maintain uniform color for all exposed concrete.
   2. Supplement Portland Cement with the following Supplementary Cementitious Materials (SCM):
      a. Fly Ash Pozzolan: ASTM C618, F as required.
      b. Blast-Furnace Slag: ASTM C989-10
      c. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
   3. The SCM producer shall have a minimum of 5 years' experience in the production of acceptable SCM and shall practice an effective quality control program to guard against contamination of the SCM.
   4. Cementitious material used shall have at least 2 years of use with proposed aggregates without detrimental reaction.
   5. Alkali content shall not exceed 0.6% when tested in accordance with ASTM C114.
   6. The temperature of cement delivered to the plant shall not exceed 150 degrees F.

B. Normal-Weight Aggregates: ASTM C33, fine and coarse aggregate, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials. Aggregate shall be crushed granite or Perkins type. Aggregate size shall be determined considering the maximum size listed on drawings, spacing of steel reinforcement, depth of slab, and thickness of concrete member.
   1. Fine Aggregate: Uniformly graded, clean sand, free from excessive fines, organic materials or other deleterious materials. Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C330, to be specified between 1-inch and 3/8-inch nominal maximum aggregate size.
   1. Lightweight cellular and granular inorganic materials, free from oil, organic matter, or other deleterious substances.
   2. Uniformly graded from 1/4-inch to maximum size. The combined grading shall be such that the percentage of weight of the combined aggregates shall fall within the limits established by ASTM C330.
   3. Dry weight of lightweight concrete shall be as specified above. Comply with ASTM C567 for oven dry density testing if specifically required by code or jurisdiction. Contractor to verify density of concrete meets the requirements of the UL rating.
   4. Lightweight Aggregates Rotary Kiln Produced: Expanded shale slate, clay or slag aggregate, the maximum size used in a particular location shall be consistent with the form and dimensions of the section being placed, with the location and spacing of the reinforcing steel and with the method of vibration. The aggregate sizes shall be such as will produce dense, uniform concrete, free of rock pockets, honeycombs, or other irregularities.

D. Recycled (Reclaimed) Aggregates:
   1. Use only in below grade work where covered in its final condition. Do not use in integrally colored concrete.
   2. Maximum 20% of total aggregates by weight.
   3. Use one source for each required type throughout the project.
   4. Testing per latest edition of Greenbook Standard Specifications for Public Works Construction.

E. Water: Clean and free from injurious amounts of oil, acids, alkali, organic matter and other deleterious substances; suitable for domestic consumption.

F. Use of shotcrete except where specifically permitted in contract documents is prohibited.

G. Use of Returned Plastic Concrete (RPC) or Returned Fresh Concrete is prohibited.

2.05 ADMIXTURES

A. General: Where more than one is used, admixtures shall be compatible. Use of admixtures shall be consistent throughout Work.
   1. Use of alternate admixtures may only be used with the written acceptance of the Architect. See Substitutions Division 01 – Product Requirements.
   2. Admixtures to be in accordance with ACI 318 Section 26.4.1.4.
   3. Prohibited Admixtures: Admixtures containing more than 0.05 percent chloride ions, fluorides, sulphites, thiocyanates, and/or nitrates are not permitted. Do not use admixtures that will negatively impact the visual finish of concrete exposed to view. Calcium chloride is not permitted.

B. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other admixtures.
   1. Available Products:
      a. Grace Construction Materials; Darex AEA or Daravair.
      b. Master Builders, Inc.; MB-VR or Micro Air.
      c. Euclid Chemical Company (The); Air Mix.

C. Chemical Admixtures: 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.
   1. Water-Reducing (Plasticizing) Admixture: ASTM C494, Type A for use in cool weather. Available Products:
      a. Grace Construction Products, W. R. Grace & Co.; "WRDA with Hycol".
      b. Master Builders, Inc.; "Pozzolith 220N".
      c. Euclid Chemical Company (The); “WR-75, WR-91 or Eucon MR”.
   2. Retarding Admixture: ASTM C494, Type B.
   3. Water-Reducing and Retarding Admixture: ASTM C494, Type D for use in hot weather. Available Products:
      a. Sika Corporation; “Sikament 30”.
      b. Euclid Chemical Company (The); “Eucon Retarder-75”.
   4. Mid-Range, Water-Reducers ASTM C494. Available Products:
      1) Master Builders “Polyheed.”
   5. Plasticizing and Retarding Admixture: ASTM C1017, Type II.
   6. Non-Chloride, Non-Corrosive Accelerating Admixture: ASTM C494, Type C or E. Manufacturer must have long-term non-corrosive test data from an independent testing laboratory (of at least a year’s duration) using an acceptable accelerated corrosion test method. Available Products:
      a. Euclid Chemical Company (The); “Accelguard 80, 90, or NCA”.
   7. Shrinkage Reducing Admixture: ASTM C494, Type S.
      a. Euclid Chemical Company; Eucon SRA Floor; Eucon SRA-XT.
      b. GCP Applied Technologies; Eclipse Floor 200; Eclipse 4500.
   8. Waterproofing Admixture: Admixture formulated to reduce permeability to liquid water, with no adverse effect on concrete properties.
      a. Admixture Composition: Crystalline, functioning by growth of crystals in capillary pores.
      b. Admixture Composition: Hydrophobic polymer waterproofing and corrosion inhibitor, functioning by closing concrete pores and chemical bonding.
      c. Permeability of Cured Concrete: No measurable leakage when tested in accordance with COE CRD-C 48 at 200 psi (1.38 MPa); provide test reports.
      d. Potable Water Contact Approval: National Science Foundation (NSF) certification for use on structures holding potable water, based on testing in accordance with NSF 61 and NSF 372.
      e. Available Products:
         2) Euclid Chemical Company; Eucon Vandex AM-10.
         3) W. R. Meadows, Inc; ADI-CON CW Plus.
         4) Xypex Chemical Corporation; XYPEX Admix C-500.

D. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494, Type C.
   1. Available Products:
      a. Euclid Chemical Company (The); Eucon CIA.
      b. Grace Construction Products, W. R. Grace & Co.; DCI.
      c. Master Builders, Inc.; Rheocrete CNI.
      d. Sika Corporation; Sika CNI.

E. Color Pigment: ASTM C979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
   1. Color: As selected by Architect from manufacturer's full range.
   2. Concentration: Base dosage rates on weight of Portland cement, fly ash, silica fume, and other cementitious materials but not aggregate or sand.

2.06 ACCESSORY MATERIALS

A. Underslab Vapor Retarder:
   1. Sheet Material: ASTM E 1745, Class A, not less than 15 mils thickness. Suitable for installation in contact with soil or granular fill under concrete slabs. Single-ply polyethylene is prohibited. Include manufacturer's recommended adhesive or pressure-sensitive tape. Plastic Vapor Retarder shall have a water-vapor transmission rate (WVTR) no greater than .008 perms (grain/h xft2 in x Hg) when tested in accordance with ASTM E96. Include manufacturer's recommended tape with water vapor transmission rate no greater than 0.3 perms when tested in accordance with ASTM E96. Tape shall be: a minimum of 6-mils thick, a minimum of 3 ¾ inches wide, manufactured from high density polyethylene, and have pressure sensitive adhesive. Include manufacturer's recommended vapor resistant mastic.
      a. Sheet Products:
         1) Alumiseal Corporation; Zero Perm Vapor Barrier.
         2) Henry Company (Fortifiber); Moistop Ultra 15.
         3) Raven Industries Inc.; Vapor Block 15.
         4) Reef Industries, Inc.; Griffolyn Type-65G or 105.
         5) W.R. Meadows, Inc.; PERMINATOR Class A - 15 mils.
         6) STEGO Industries LLC; Stego Wrap Vapor Barrier.
         7) Substitutions: See Section 01 60 00 - Product Requirements.
      b. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
         1) Vapor Retarder Tape:
            (a) Water Vapor Transmission Rate: ASTM E 96, 0.3 perms or lower
            (b) Minimum 6-mils thick
            (c) Minimum 3 3/4 inches wide
            (d) Manufactured from High Density Polyethylene
            (e) Pressure Sensitive Adhesive

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents. Acceptance by Architect required before using.
   1. Grout: Comply with ASTM C1107.
   2. Height Change, Plastic State; when tested in accordance with ASTM C827:
      a. Maximum: Plus 4 percent.
      b. Minimum: Plus 1 percent.
   3. When placed at a flowable consistency there shall be at least 95% bearing under an 18 inches x 36 inches base plate.
   4. Minimum Compressive Strength at 48 Hours: 3,000 pounds per square inch.
   5. Minimum Compressive Strength at 28 Days, ASTM C109: 7,000 pounds per square inch
   6. Flowable Products:
      a. Euclid Chemical Company; Hi-Flow Grout.
      b. W. R. Meadows, Inc; 588-10K; 1428 HP.
      c. BASF Construction Products; Masterflow 713 or 928.

d. SIKA Corporation; Sika Grout 328.
e. SpecChem; SC Precision Grout
f. Metallic grout equivalent to Master Builders "Embeco" may be used only where covered by earth, concrete, or masonry.
g. Substitutions: See Division 01 - Product Requirements.

7. Low-Slump, Dry Pack Products:
   a. Dry Pack products may only be used where approved by Architect or otherwise indicated in Drawings.
      1) Euclid Chemical Company; DRY PACK GROUT.
      2) Five Star Products, Inc; Five Star Grout.
      3) L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; Duragrout.
      4) SpecChem, LLC; SC Multipurpose Grout.
      5) W. R. Meadows, Inc; PAC-IT.
      6) Substitutions: See Division 01 - Product Requirements.

C. Non-Shrink Epoxy Grout: For anchor reinforcing steel or threaded rods in concrete. Moisture-insensitive, two-part; consisting of epoxy resin, non-metallic aggregate, and activator.
   1. Composition: High solids content material exhibiting positive expansion when tested in accordance with ASTM C827.
      a. Maximum Height Change: Plus 4 percent.
      b. Minimum Height Change: Plus 1 percent.
   2. Minimum Compressive Strength at 7 days, ASTM C579: 12,000 pounds per square inch (82.7 MPa).
   3. Products:
      a. BASF Construction Products; Masterflow MP
      b. Sika Corporation; Sikadur 32 Hi-Mod
      c. Euclid Chemical Company; Epoxy 452 or E3G.
      d. Five Star Products, Inc; Five Star DP Epoxy Grout.
      e. SpecChem, LLC; SpecPoxy Grout.
      f. Substitutions: See Division 01 - Product Requirements.

D. Floor Leveling and Fill Materials
   1. Epoxy Concrete Mortar (where areas to fill are less than ¼-inch thick): Floor leveling, non-shrink trowel applied epoxy concrete mortar.
   2. Concrete Mortar (where areas to fill are greater than ¼-inch thick): Floor leveling, patching and repair, non-shrink trowel applied concrete mortar.
   3. Cementitious Floor Leveling Material: Shall be self-leveling or trowelable with a minimum 28 day compressive strength of 3000 psi in accordance with ASTM C-109.
      a. The Quikrete Companies; Quikrete No. 1249.
      b. Ardex; V-1200.
      c. Mapei; "UltraFlex".
      d. Substitutions: See Division 01 - Product Requirements.

2.07 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059, Type II acrylic emulsion or styrene butadiene.
   a. Euclid Chemical Company; AKKRO-7T; Wuco-Weld.
   b. W. R. Meadows, Inc; ACRY-LOK.
   c. Sonneborn; Sonobond.
   d. Larsen Products; Weld-Crete.

e. Substitutions: See Division 01 - Product Requirements.

B. Epoxy Bonding System:
1. Complying with ASTM C881 and of Type required for specific application. Two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
a. Types I and II, non-load bearing or IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
1) CTS Cement Manufacturing Corporation; Fast Anchoring and Repair Adhesive.
2) Euclid Chemical Company; DURAL FAST SET LV.
3) Mapei Corporation; Planibond AE, Planibond 3C.
4) Substitutions: See Division 01 - Product Requirements.

C. Waterproofing Admixture Slurry: Slurry coat of Portland cement, sand, and crystalline waterproofing additive, mixed with water in proportions recommended by manufacturer to achieve waterproofing at cold joints in concrete.
1. Products:
a. W. R. Meadows, Inc; ADI-CON CW Plus.
b. Xypex Chemical Corporation; XYPEX Concentrate.
c. Substitutions: See Division 01 - Product Requirements.

D. Waterstops:
1. Rubber, complying with COE CRD-C 513.
2. PVC, complying with COE CRD-C 572.
3. Bentonite and butyl rubber, complying with NSF 61 and NSF 372.
4. Synthetic rubber; swells to 1000 percent of original size in clean water.
5. Configuration: As indicated on drawings.
6. Size: As indicated on drawings.
7. Products:
a. Penetron; Penebar SW-55.
b. CETCO, a division of Minerals Technologies Inc; WATERSTOP RX.
c. Kryton International, Inc; Krytonite Swelling Waterstop.
d. Substitutions: See Division 01 - Product Requirements.

E. Reglets: Formed steel sheet, galvanized, not less than 26 gauge, with temporary filler to prevent concrete intrusion during placement.

F. Slab Expansion and Isolation Joint Filler: Preformed non-extruded resilient filler.
1. Material:
a. ASTM D1751, cellulose fiber.
b. ASTM D1752, sponge rubber (Type I).
c. ASTM D8139, semi-rigid, closed-cell polypropylene foam.
2. Products:
a. Burke; Fiber Expansion Joint.
b. W.R. Meadows; Fibrated Expansion Joint Filler with Snap-Cap; Deck-O-Foam Joint Filler with pre-scored top strip.
c. Nomaco, Inc; Nomaflex Expansion Joint Filler with Void Cap Option.
d. Substitutions: See Division 01 - Product Requirements.

G. Slab Contraction Joint Device: Preformed linear strip intended for pressing into wet concrete to provide straight route for shrinkage cracking.

H. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.

1. Provide removable plastic cap strip that forms wedge-shaped joint for sealant installation.
2. Height: To suit slab thickness.

2.08 CURING MATERIALS

A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
   1. Conform with State of California Air Resources Board VOC Regulations.
   2. Products:
      a. Euclid Chemical Company ; EUCOBAR.
      b. Kaufman Products Inc; VaporAid.
      c. W. R. Meadows, Inc ; Evapre or Evapre-RTU.
      d. Substitutions: See Division 01 - Product Requirements.

B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309:
   1. Type 1, Class A and B, and AASHTO Specification M-148;
   2. Type 1, Class A and B requirements, and State of California Air Resources Board VOC Regulations.
   3. Sodium Silicate compounds are prohibited.
   4. Certified by curing compound manufacturer to not interfere with bonding of floor covering.
   5. Product dissipates within 4 to 6 weeks.
   6. Products:
      a. Euclid Chemical Company; COLOR-CRETE CURE AND SEAL VOC.
      b. W. R. Meadows, Inc; 1100-Clear.
      c. Substitutions: See Division 01 - Product Requirements.

C. Curing Agent, Water-Cure Equivalent Type: Clear, water-based, non-film-forming, liquid-water cure replacement agent.
   1. Compressive Strength of Treated Concrete: Equal to or greater than strength after 14-day water cure when tested according to ASTM C39.
   2. Conform with State of California Air Resources Board VOC Regulations.

D. Resin Curing Compound: Solvent-based liquid, white pigmented, membrane-forming.
   1. For use on exterior slabs. When slab will be painted, sealed, topped, or receive other applied finish, completely remove curing compound after curing is complete and before finish coatings are applied.
   2. Comply with ASTM C309, Type 2, Classes A and B.
   3. Conform with State of California Air Resources Board VOC Regulations.
   4. VOC Content: Less than 200 g/L.
   5. Solids Content: 20 percent, minimum.
   6. Products:
      a. Euclid Chemical Company; KUREZ DR-VOX; KUREZ DR-100.
      b. Kaufman Products Inc; Thinfilm 450 Resin Base.
      c. Substitutions: See Division 01 - Product Requirements.

E. Curing and Sealing Compound, Moisture Emission-Reducing, Membrane-Forming: Clear, liquid sealer for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.
   1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.

2. Comply with ASTM C309 and ASTM C1315 Type I Class A.
3. Conform with State of California Air Resources Board VOC Regulations.
4. VOC Content: Less than 100 g/L.
5. Solids Content: 25 percent, minimum.
6. Sodium silicate compounds prohibited.
7. Products:
    a. Euclid Chemical Company; Diamond-Clear VOX
    b. Floor Seal Technology, Inc; VaporSeal 309 System.
    c. Spec Chem; Cure & Seal WB.
    d. ShawContract; Moisture Shield
    e. Substitutions: See Division 01 - Product Requirements.

F. Curing and Sealing Compound, Moisture Emission-Reducing, Penetrating: Clear, water-based, non-film-forming curing agent; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission, moisture vapor emission, and alkalinity.
1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
2. Compressive Strength of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C39.
3. Chloride Ion Resistance of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C1202.
4. Comply with ASTM C309 and ASTM C1315 Type I Class A.
5. Conform with State of California Air Resources Board VOC Regulations.
6. Products:
    a. W.R. Meadows; Pentreat 244.
    b. Substitutions: See Division 01 - Product Requirements.

G. Curing and Densifying Compound, Membrane-Forming: Lithium polysilicate-based, clear, liquid densifier for application to newly-placed concrete.
1. Comply with ASTM C309.
2. Conform with State of California Air Resources Board VOC Regulations.
3. Solids Content: 25 percent, minimum.
4. Products:
    a. BASF; Sonosil.
    b. Euclid Chemical Company; Eucosil.
    c. Substitutions: See Division 01 - Product Requirements.

H. Moisture-Retaining Sheet/Cover: ASTM C171.
1. Provide in a thickness of 42 mils; standard weight of 53 lbs./1000 ft2; tensile strength (machine direction) of 36 lbs./in.; and puncture resistance of 70 lbs.
    a. Fiber reinforced asphaltic vapor barrier building paper, regular.
    b. Polyethylene film, white opaque.
    c. White-burlap-polyethylene sheet.

I. Absorptive Cover: AASHTO M182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

J. Water: Potable, not detrimental to concrete.

2.09 FLOOR AND SLAB TREATMENTS

A. Abrasive Aggregate for non-slip finish: Fused aluminum oxide grits, graded 12/30. Use factory graded rustproof and non-glazing material that is unaffected by freezing, moisture and cleaning materials.

B. Concrete Hardener/Sealer: Clear, water soluble, sprayable in-organic silicate-based hardener/sealer or acrylic co-polymer resin. Shall conform to State of California Air Resources Board VOC Regulations.

C. Concrete Sealer: Conforming to ASTM C-309, Type I, Class B requirements, and conforming to State of California Air Resources Board VOC Regulations.

D. Sealer for Colored Concrete: Clear, penetrating, water-based, low-luster sealer recommended by the pigment manufacturer. It shall be compatible with colored concrete components and will not adversely affect concrete color or slip resistance.

2.10 POST-INSTALLED CONCRETE ANCHORS

A. Expansion Anchors:
   1. As indicated on Drawings.

B. Adhesive Anchors:
   1. As indicated on Drawings.

C. Screw Anchors:
   1. As indicated on Drawings.

D. Grouted Dowels / Grouted Anchors: High strength non-shrink grout to anchor reinforcing steel or threaded rods in concrete.
   1. Master Builders; Masterflow 928.
   2. Sika Corporation; Sika Grout 212.
   3. Substitutions: See Division 01 - Product Requirements.

2.11 REPAIR MATERIALS

A. High Strength Flowing Repair Mortar: For forming and pouring structural members, or large horizontal repairs, provide the flowable one-part, high strength microsilica modified repair mortar with 3/8” aggregate. The product shall achieve 9000 psi @ 28-days at a 9-inch slump.

B. Concrete Patching Mortar:
   1. Horizontal repairs, ASTM C1059, Type II. Available Products:
      a. Euclid Chemical Co.; Euco Thin Coat, Concrete Coat.
      b. Sika Chemical Corp.; Sikatop 121 or 122.
      c. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Vertical or Overhead repairs, ASTM C1059, Type II. Available Products:
      a. Euclid Chemical Co.; Verticoat.
      b. Sika Chemical Corp.; Sikatop 123.
      c. Master Builders; Emaco R300, 310 or R350.
      d. Substitutions: See Division 01 - Product Requirements.

C. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
   1. Cement Binder: ASTM C150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.

2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than specified strength at 28 days when tested according to ASTM C109.
5. Bond Strength: Not less than specified strength at 28 days when tested according to ASTM C1042.
6. Available Products:
    a. Euclid Chemical Co.; Flo-Top.
    b. Master Builders; UnderLayment 110.
    c. Substitutions: See Division 01 - Product Requirements.

D. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than specified strength at 28 days when tested according to ASTM C109.
5. Product shall exhibit the following properties: Chaplin Abrasion Test – 0.0079-inches maximum at 28 days.
6. Available Products:
    a. Euclid Chemical Co.; Thin Top SL.
    b. Master Builders; Topping 112.
    c. Substitutions: See Division 01 - Product Requirements.

2.12 CONCRETE MIX DESIGN

A. General:
1. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
    a. Procurement of concrete mix design is responsibility of Contractor.
    b. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
    c. Contractor shall notify the Testing Laboratory and Architect of intent to use concrete pumps to place concrete so that mix designs can be modified accordingly.
2. Supplementary Cementitious Materials (SCM): Fly ash shall not exceed 25% of the total cementitious material, unless otherwise indicated by Architect and Structural Engineer. Where slag is used to replace cement, slag shall not exceed 25% of the total cementitious material by mass. Ternary systems where more than one supplementary cementitious material is used are prohibited without consent of SEOR.
3. Limit water-soluble, chloride-ion content in hardened concrete to specified percent by weight of cement.
4. Admixtures: Use admixtures according to manufacturer's written instructions.
    a. Use admixtures in concrete, as required, for placement and workability.

b. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
c. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
d. Use corrosion-inhibiting admixture in concrete mixtures where required.

5. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

B. Mixtures:
1. Initial mix design shall be prepared for all concrete in accordance with ACI 318 Section 26.4.3. Mix proportions shall be determined in accordance with ACI 318 Section 26.4.3 or 26.4.4. In the event that additional mix designs are required due to depletion of aggregate sources, aggregate not conforming to Specifications or at request of Contractor, these mixes shall be prepared as above.
2. Definition of Mix Properties to be specified for each mix:
a. Concrete density, either normal or light weight concrete.
b. Concrete strength (f'c) as the minimum compressive strength at a specified number of days, tested in accordance with ASTM C39.
c. Aggregate size as the largest of the coarse aggregate.
d. Slump limit. Slump shall be measured at the point of delivery in accordance with ASTM C143 prior to the addition of superplasticizer (if used). Slump tolerance shall meet the requirements of ACI 117 and shall be 4 inch plus or minus 1 inch for general concrete placement. Mixes employing the specified mid-range water reducer shall provide a measured slump not to exceed 7 inch ±1 inch after dosing, 2 inch ±1 inch before dosing. Use water reducing admixtures as required to provide a workable consistency for pump mixers. Water shall not be added at the jobsite without written review by the structural engineer.
e. Air entrainment: Provide 6% air entrainment typical for exterior concrete exposed to freeze-thaw cycles. Provide required air entrainment to meet the exposure categories listed in the concrete general notes per ACI 318, Chapter 19.
f. Air content by volume and may be plus or minus 1.5 percent at point of delivery.
g. Water/cement ratio is a maximum and specified by weight.
h. SCM cement replacement ratio as a %.
i. Drying shrinkage limit (where required) as a percentage change in length after 21 days of drying when tested as per ASTM C157 with 4 inches x 4 inches x 11 inches specimen moist cured 7 days prior to drying.
j. Fiber reinforcement (where used) specified as weight/volume of concrete.

2.13 MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 or ASTM C685 and ASTM C 1116 (fiber reinforced concrete when applicable), and furnish batch ticket information.
1. The batching plant shall be equipped with an electric metering device capable of determining moisture content of sand.
2. Begin the mixing operation within thirty minutes after the cement has been intermingled with the aggregates.
3. After mix water has been added, concrete shall be mixed not less than 1-1/2 minutes nor more than 1-1/2 hours. Concrete shall be rejected if not deposited within the time specified.

B. Project-Site Mixing: Use only if method of storing material, mixing of material and type of mixing equipment is approved by Architect. Approval of site mixing does not relieve Contractor of any other requirements of Specifications. Measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.
   1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
   2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
   3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

C. Lightweight Concrete: Mix lightweight concrete in accordance with the directions of the approved lightweight aggregate manufacturer.

D. Admixtures:
   1. Air entrained and chemical admixtures shall be charged into mixer as a solution and shall be dispensed by an automatic dispenser or similar metering device. Powdered admixtures shall be weighed or measured by volume as recommended by manufacturer. Accuracy of measurement of any admixture shall be within plus or minus 3%.
   2. Two or more admixtures may be used in same concrete, provided such admixtures are added separately during batching sequence, and provided further that admixtures used in that combination retain full efficiency and have no deleterious effect on concrete or on properties of each other.
   3. All admixtures are to be approved by Structural Engineer prior to commencing this work.

E. Re-tempering:
   1. Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall be discarded, not re-tempered.
   2. Indiscriminate addition of water to increase slump is prohibited.
   3. When concrete arrives at project with slump below that suitable for placing, water may be added only if neither maximum permissible water-cement ratio nor maximum slump is exceeded. Water shall be incorporated by additional mixing equal to at least half of total mixing time required. Any addition of water above that permitted by limitation of water-cement ratio shall be accompanied by a quantity of cement sufficient to maintain proper water-cement ratio. Such additions shall only be used if approved by Architect. In any event, with or without addition of cement, not more than 2 gallons of water per cubic yard of concrete, over that specified in design mix, shall be added.

F. Cold Weather Batching:
   1. When average of the highest and lowest air temperature falls below 40 degrees F for more than three consecutive days, provide adequate equipment for heating concrete materials. No frozen materials or materials containing ice shall be used. When placed in forms, concrete placed in these temperatures shall have a minimum temperature based on dimensions of concrete sections placed per ACI 301.

G. Hot Weather Batching:
   1. Concrete deposited in hot weather shall have a placing temperature below 95 degrees F per ACI 301. If necessary, ingredients shall be cooled to accomplish this.

H. Do not use shrinkage-reducing admixture (SRA) in same concrete batch with a moisture vapor reduction admixture (MVRA) or porosity inhibiting admixture (PIA).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Prior to Work specified in this Section, carefully inspect the installed Work of other trades and verify that such Work is complete to the point where this installation may properly commence.

B. Formwork: Comply with requirements of Section 03 10 00.

C. Reinforcement: Comply with requirements of Section 03 20 00.

D. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

E. Notify the Architect at least 48 hours in advance of the beginning of pouring operations and at the completion of formwork and location of all construction joints. An inspection of forms and joints will be made for approval of finished work and general layout only. The foregoing inspection shall in no way relieve the Contractor of responsibility of design and safety or formwork, bulkheads and shorings.

F. Ensure Excavations are sufficient to permit placement, inspection, and removal of forms. The entire place of deposit shall have been cleaned of wood chips, sawdust, dirt, debris, hardened concrete and other foreign matter. No wooden ties or blocking shall be left in the concrete except where indicated for attachment of other work.

G. Concrete surfaces to which fresh concrete is to be bonded shall be brush cleaned to remove all dust and foreign matter and to expose the aggregate, and then coated with the bonding adhesive herein specified.

H. Prior to placing concrete for any slabs on grade, the moisture content of the subgrade below the slabs shall be adjusted to at least optimum moisture.

I. Verify geotechnical engineer has approved all foundation excavations.

J. No concrete shall be placed until formwork and reinforcement has been approved by Architect. Clean forms of all debris and remove standing water. Thoroughly clean reinforcement and all handling equipment for mixing and transporting concrete. Concrete shall not be placed against reinforcing steel that is hot to the touch.

K. Coordinate:
   1. Obtain necessary information for coordination of formwork with items to be embedded in concrete.
   2. Coordinate size and location of openings in concrete. Obtain Architect’s approval for openings not shown on Structural Drawings.

L. Discrepancies:
   1. Notify the Architect of any discrepancies or inconsistencies.
   2. Do not proceed with installation in areas of discrepancy until such discrepancies have been fully resolved.

M. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
   1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
   2. Use latex bonding agent only for non-load-bearing applications.

N. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.

O. Concrete Slabs on Grade:
   1. Bases below exterior and interior slabs on grade shall be accurately leveled and compacted prior to placing of concrete.
   2. Unless otherwise indicated, interior slabs on grade shall be poured over a minimum of four (4 inch) inches of compacted crushed rock, over a vapor retarder. Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
   3. Protect slab on grade subbase from moisture prior to placing concrete. Avoid wetting rock layer to allow adequate concrete curing and avoid future vapor transmission. If the subbase has been wet excessively, verify that water has been eliminated prior to placement of concrete.

3.03 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded. Ensure that embedded items are placed and held, during placing of concrete, to tolerances consistent with other items that will be attached to them.
   1. Install anchor rods, accurately located, to elevations required and complying with tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges."
   2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
   3. Install dovetail anchor slots in concrete structures as indicated.
   4. Install concrete accessories in accordance with manufacturer’s recommendations: straight, level, and plumb.

B. Provide pipe sleeves when pipes pass through concrete. Fill voids in sleeves, inserts and anchor slots with readily removable material to prevent entry of concrete into voids. The Contractor shall also see that sleeves have been installed and other provisions have been made for the installation of mechanical, electrical and other equipment.

C. No conduit shall be cast in concrete unless specifically indicated on the Structural Drawings.

D. Coring of concrete after placement is not permitted without prior approval by the Engineer of Record.

3.04 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

E. Post-Installed Concrete Anchors
   1. Install in accordance with the manufacturer's recommendations and ICC-ES (or IAPMO) reports.
   2. Use washers on all bolts.
   3. Use care to avoid cutting or damaging reinforcing bars.
   4. When exposed to view in the final structure, bolts shall be of a length that will extend entirely through but not more than 1/4-inch beyond the nuts unless otherwise shown on the Drawings.

3.05 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Existing Concrete to New Concrete Joints
   1. Chip keys and roughen existing concrete surfaces where new concrete abuts. Roughen surface by bush-hammering, chipping or sandblasting to remove surface mortar and expose clean aggregate.
   2. Drill and install dowels using epoxy grout in accordance with manufacturer's printed recommendations.
   3. Prime surface with 10-mil layer of epoxy adhesive using a stiff brush. Place concrete while the epoxy adhesive is still tacky. Re-prime if necessary.

C. Construction Joints: Comply with ACI 318 and install only as indicated and noted on Drawings. Joints not indicated on Drawings shall be so located, when approved, as to least impair strength of structure, and shall conform to typical details. Construction joints shall have level tops, vertical sides. Horizontal construction joints shall be thoroughly cleaned and roughened by removing entire surface film and exposing clean aggregate solidly embedded in mortar matrix. Joints between concrete and masonry shall be considered construction joints. Vertical construction joints need not be roughened unless noted otherwise. See Drawings for doweling and required keys. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
   1. Place joints perpendicular to main reinforcement unless otherwise indicated. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
   2. In walls, do not space construction joints more than 60 feet apart in horizontal direction and maximum 20 feet apart in vertical direction unless otherwise shown. In framed slabs and beams, and on metal deck slabs, do not space construction joints more than 120 feet

apart. Place construction joints perpendicular to main reinforcement except as otherwise shown. Continue reinforcement across construction joints except as otherwise shown.

3. Form keyed joints at indicated locations. Embed keys at least 1-1/2 inches into concrete.
4. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
6. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
7. Roughen surface at all construction joints where key is not used and under baseplates. Roughen concrete surface while concrete is still green where possible. Do not leave laitance, loosened particles of aggregate or damaged concrete at surface. Forms and reinforcing shall be cleaned of drippings. Dampen contact surfaces of construction joints, leaving them free of standing water, before placing fresh concrete. Roughen construction joints by any of following methods:
   a. By sand-blasting joint.
   b. By thoroughly washing joint, using a high-pressure hose, after concrete has taken initial set. Washing shall be done not less than 2 hours nor more than 4 hours after concrete has been poured, depending upon setting time.
   c. By chipping and wire brushing.
8. All decisions pertaining to adequacy of construction joint surfaces and to compliance with requirements pertaining to construction joints shall be reviewed with the Structural Engineer.
9. Before placing regular concrete mix, horizontal construction joint surfaces shall be covered with a layer of mortar composed of cement and fine aggregate of same proportions as that used in prescribed mix but omitting coarse aggregate.

D. Control Jointing in Slabs-on-Grade: Joints shall be in locations indicated on Drawings, or as directed by Architect. Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints as follows:
   1. Construct interior slab control joints as follows:
      a. By use of construction joints laid out in checkerboard pattern; pour and allow alternate slabs to set; fill out balance of checkerboard pattern with second pour.
      b. By use of dummy groove joints at least 1/4 depth of slab, and at least 1/8 inch wide. These joints may be sawcut as soon as wet concrete can support the weight of the equipment and operator. Delaying saw-cutting past this point will make jointing ineffective. Use 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.
   2. Slab reinforcing need not be terminated at control joints.
   3. Construction and expansion joints shall be counted as control joints.

E. Isolation/Expansion Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
   1. Unless otherwise indicated, use 3/8 inch thick expansion joint filler.
   2. Joints in interior slabs on grade shall be only in locations indicated.
   3. Edges of concrete at joints shall be edger finished to approximately 3/8 inch radius.
   4. Interrupt reinforcing at all expansion joints.
   5. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

6. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 are indicated.
7. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

F. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

G. Joint Filling:
1. Prepare, clean, and install joint filler according to manufacturer's written instructions.
   a. Defer joint filling until concrete has aged at least a specified length of month(s). Do not fill joints until construction traffic has permanently ceased.
2. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
3. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.06 PLACING CONCRETE

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Ensure that all foreign material has been removed from surfaces, including reinforcement and embedded items, against which concrete will be placed.

B. Contractor shall notify the Testing Laboratory and Architect of intent to use concrete pumps to place concrete. Mix designs shall be modified accordingly as required.

C. The addition of water to the mix after leaving the plant is permitted only when the added water would not cause the mix design water/cement ratio to be exceeded. The addition of water at the site is contingent upon full-time inspection of the process by the owners testing laboratory and the acceptance of the Inspector. Comply with ACI 301, section 4.3.2.1.

D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

E. Method: Convey concrete as rapidly and directly as practicable to preserve quality and to prevent segregation. Deposit concrete in forms as nearly as practicable at its final position in a manner which will ensure that required quality is obtained. Chutes shall slope not less than 4 inches and not more than 6 inches per foot of horizontal run.
1. Do not deposit concrete that has initially set. Retempering of concrete, which has partially set, is not permitted.
2. The maximum time for discharge of concrete shall be per ASTM C94.

F. Sequence: Pour all walls and columns full height to designated construction joints. Pour all beams, and horizontal structures to designated construction joints. Construction joints to be made in walls only where indicated on the Drawings.

G. Placement: Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete. Deposit concrete to avoid segregation.
1. Once placing is started, carry it on as a continuous operation until placement of the panel or section is complete. Construction joints to be made only where indicated on the Drawings or on approved shop drawings. Prevent the formation of cold joints at other locations.
2. Deposit concrete 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 in a manner to avoid inclined construction joints.

3. Particular care shall be used when starting a concrete pour to maintain the continuity of appearance. Use all means necessary to avoid blemishes, imperfections, or changes in the finish.
4. Maintain reinforcement in position on chairs during concrete placement.
5. Deposit concrete into forms in horizontal layers not exceeding 24 inches in thickness around building, proceeding along forms at a uniform rate and consolidating into previous pour. In no case shall concrete be poured into an accumulation of water ahead of pour, nor shall concrete be flowed along forms to its final place of deposit. Fresh concrete shall not be permitted to fall from a height greater than 6 feet without use of adjustable length pipes or, in narrow walls, of adjustable flexible hose sleeves. Concrete shall be scheduled so that placing is a continuous operation for the completion of each section between predetermined construction joints. If any concreting operation, once planned, cannot be carried on in a continuous operation, concreting shall stop at temporary bulkheads, located where resulting construction joints will least impair the strength of the structure. Location of construction joints shall be as shown on the drawings or as approved by Structural Engineer. The rate of rise in walls shall not be less than 2 feet per hour.

H. Consolidation: Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners. Concrete shall be thoroughly compacted and worked to all points with solid continuous contact to forms and reinforcement to eliminate air pockets and honeycombing.
   1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301. Use and type of vibrator shall conform to ACI 309, Guide for Consolidation of Concrete.
   2. 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. Place vibrating element directly in concrete and not attached to either inside or outside of forms or to reinforcing steel.
   3. 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 over-vibrate concrete.

I. Initial Finishing:
   1. Screed slab surfaces with a straightedge and strike off to correct elevations.
   2. Where floor drains or floor slopes are indicated, slope slabs uniformly to provide even fall for drainage.
   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.

J. Concrete Slabs on Grade:
   1. Exterior and interior concrete slabs on grade shall be poured as required under this Section. Base shall be accurately leveled and compacted prior to placing of concrete.
   2. Typically, interior slabs on grade shall be poured over a minimum of four (4 inch) inches of clean crushed rock, unless otherwise indicated, over a vapor retarder. Base section shall meet the requirements within the Geotechnical Engineering report.
   3. Protect slab on grade subbase from moisture prior to placing concrete. Avoid wetting rock layer to allow adequate concrete curing and avoid future vapor transmission. If the subbase has been wet excessively, verify that water has been eliminated prior to placement of concrete.
   4. Screed slab surfaces with a straightedge and strike off to correct elevations.

K. Concrete Over Metal Deck:

1. At floor slabs, increase fill thickness as required to compensate for deflection of beams and deck at no additional cost to Owner. Obtain specified fill thickness at high points of the deck. Finish floor to specified tolerances for floor flatness, including at concrete over metal deck floors. Refer to 05 30 00 Metal Decking Specification.
2. At roof, maintain specified thickness of concrete uniformly over deck. Slab need not conform to flatness and levelness tolerances

L. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Concrete placed in these temperatures shall have a minimum temperature based on dimensions of concrete sections placed as shown in ACI 301. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When concrete is expected to be placed at air temperatures of less than 40 deg F, contractor shall review with Architect all special procedures that will be used including mix design modifications and methods of protection. This review shall occur prior to the expected extreme temperatures.
2. Provide sufficient protection material and equipment on the Project site in advance of the time when the mean daily temperatures are expected to drop below 40 degrees F.
3. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301. In addition, take precautions including, but not limited to:
    a. Use non-chloride, non-corrosive accelerating admixture in accordance with previously accepted submittals.
    b. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
    c. Do not use calcium chloride, salt, or other materials containing antifreeze agents unless otherwise specified and approved in mixture designs.

M. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1 and as follows:
1. When concrete is expected to be placed at air temperatures of greater than 75 deg F, contractor shall review with Architect all special procedures that will be used including mix design modifications and methods of protection. This review shall occur prior to the expected extreme temperatures.
2. Provide sufficient protection material and equipment on the Project site in advance of the time when the mean daily temperatures are expected to rise above 75 degrees F.
3. When air temperature exceeds 75 deg F, take special precautions to prevent slump loss, rapid setting, and plastic shrinkage; including but not limited to:
    a. Maintain concrete temperature below 95 deg 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.
    b. Keep aggregate piles continuously moist by sprinkling with water. Temperature of Concrete: The temperature of the concrete mix at the time it is being placed in the forms shall not exceed 95 degrees F per ACI 301. The method employed to provide this temperature shall in no way alter or endanger the design mix or the design strength required.
    c. Use set retarding admixture in accordance with previously accepted submittals.
    d. Convey, deposit, finish and commence curing of concrete as rapidly as practicable.

N. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

O. Minimize evaporation from concrete in place by providing shade and windbreaks. Maintain such protection in place for 14 days minimum.

3.07 FINISHING FORMED SURFACES

A. Rough-Formed Finish: Surfaces shall be reasonably true to line and plane with no specified requirements for selected facing materials. Tie holes and defects shall be patched and fins exceeding 1/4 inch in height shall be rubbed down with wooden blocks. Fins and other rough spots at surfaces to receive membrane waterproofing shall be completely removed and the surfaces rubbed smooth. Otherwise, remove fins and other projections exceeding a specified height agreed with Architect. Rough finish shall be used for the following areas:
   1. Below grade and unexposed surfaces.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

C. Smooth Plywood Form Finish: Finish shall be true to line and plane. Tie holes and defects shall have been patched and ground with surface fins removed. Arrangement of plywood sheets shall be orderly, symmetrical, as large as practical and free of torn grain or worn edges. Surface concrete shall be treated with 1 part muriatic acid, in three parts water solution, followed immediately by a thorough rinsing with clear water. Surfaces which are glazed, have efflorescence, or traces of form oil, curing compounds or parting compounds shall be cleaned or treated to match other formed surfaces, except as otherwise indicated or specified.
   1. Smooth Plywood Form Finish shall be used for the following areas:
      a. All surfaces above grade unless otherwise specified.
      b. At Contractor's option, may also be used in lieu of rough form finish.

D. Smooth Plastic Liner Finish: Surface shall be smooth, concrete free of honeycombing, air pockets larger than 1/8 inch in diameter, and fins.
   1. This finish shall be used only where indicated on the Drawings.

E. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
   1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
   2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
   3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

F. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

G. Sacked Surfaces: Exposed surfaces that are unacceptable in appearance to the Architect shall be sacked.

1. Prepare concrete surfaces in accordance with the referenced standards. Remove any form release materials by stoning by hand, power grinding or other method approved by the Architect.
2. Prepare concrete surfaces to receive sack finishing with a light sand blasting.
3. For best results, grout application and rubbing should be performed when areas to be treated are shaded and during cool, damp weather. When work is to be performed in hot and dry weather, a fog spray should be available for continuous use.
4. Prepare grout samples for matching of concrete surfaces for approval by the Architect. These shall be made in the following proportions of gray cement to white cement to sand: 1:1:2, 1:2:3, and 2:1:3, etc. until the correct matching color is obtained on the test areas. Sand should be fine enough to pass the Number 30 sieve. Mixes should be made to a good workable consistency in a clean container and the mix with the best color chosen, or modified if needed.
5. Provide sufficient qualities of sand and cement from the same source for the complete work at the job site.
6. Mixing Application:
    a. Mixing of grout on the job should be timed for it to be used up within 1 to 1-1/2 hours.
    b. Let the grout stand 20 to 30 minutes after mixing, and then remixed before applying.
    c. Soak the concrete surface thoroughly with water at least 15 minutes before applying grout and again just before application so that the surface is adequately wet during the operation.
    d. Apply grout with plasterer's trowel or sponge rubber float in sweeping strokes from the bottom up. Brush or spray gun applications may be used when approved by the Architect.
    e. Work in freshly applied grout vigorously with a sponge rubber float, then let sit until some of its plasticity is gone but not until it loses its damp appearance. At this point it shall be rubbed with clean, dry burlap to remove the excess grout, leaving no visible film on the surface but filling all air holes.
    f. Keep the surface wet for a day after grouting and sack rubbing are completed.
7. Alternate methods of application and materials shall be subject to the approval of the Architect.

H. Schedule of Concrete Finish Types shall be coordinated with the Architect and indicated on Drawings.

3.08 FINISHING FLOORS AND SLABS (FLATWORK)

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Unless otherwise indicated or specified, flatwork shall have an integral monolithic finish.

C. Integral Monolithic Finish: Apply as soon as freshly poured concrete slabs will bear weight of workers. Pour slabs full thickness to finish floor elevations indicated. At proper time, tamp surface repeatedly with a wire mesh or grid tamper in a manner to force aggregate down below surface and to bring sufficient mortar to surface to provide for a smooth coating of cement mortar over entire surface. Allow surface mortar to partially set, then float with wooden floats and finish with one of following, as required.
    1. Broom Finish: Steel trowel surface to a smooth dense surface free of lines, tool marks, cat faces and other imperfections. After troweling, and before final set, give surface a broom finish, brushing in direction noted on Drawings, or as directed. Broom finish shall be used typically on exterior flatwork except as otherwise indicated or specified and shall be "medium" texture as approved by Architect.

2. Smooth Steel Trowel Finish: Apply 2 steel trowelings to obtain hard, smooth surface. All lips, irregularities, uneven levels, etc. shall be worked out before last troweling. All interior flatwork shall have a smooth steel trowel finish unless specified otherwise.

D. Slip-Resistive Finish: Before final floating, apply slip-resistive finish. Apply according to manufacturer's written instructions.

E. Dry-Shake Floor Hardener Finish: After initial floating, apply dry-shake floor hardener to surfaces according to manufacturer's written instructions.

3.09 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. For tolerances not indicated, refer to ACI 117.

B. Slabs on grade – Comply with FF Floor Flatness & FL Floor Levelness as specified by Architect or Structural Engineer. Where not otherwise indicated, slab shall meet the a Specified overall flatness, SOF_F = 35 and Specified overall levelness, SOF_L = 25 minimum. Coordinate with Architect flatness and levelness requirements for flooring to be installed prior to placing concrete.

C. Elevated slabs – Comply with Architectural or Structural Engineer requirements.

D. Comply with flatness and levelness tolerances per ASTM E 1155 for randomly trafficked floor surfaces. Measure FF Floor Flatness and FL Floor Levelness within 48 hours after slab installation; report both composite overall values and local values for each measured section.

E. Slabs supporting modular office partitions, adhered flooring systems, or compact storage shelving must also comply with the manufacturer’s tolerance requirements.

F. Slabs scheduled to receive wood flooring must also comply with tolerances required for installation of wood flooring.

G. Finished surfaces of exterior integral finished flatwork shall not vary more than 1/4 inch from a 10' long straightedge, except at grade changes.

H. Fill or grind completed slabs as necessary to achieve specified finish tolerances. Fill shall be with a self-leveling cementitious product capable of being tapered to a feathered edge.
   1. Repair any slab section measuring below either the minimum local F-number or the minimum local L-number.

3.10 SHORES AND RESHORES

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
   1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
   2. As a minimum, shoring shall remain in place for the following periods:
      a. Walls and Columns: 2 days

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 adequate reshoring to support construction without excessive stress or deflection.

3.11 CONCRETE SURFACE REPAIRS

A. Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval. Repair and replacement work will be done at Contractor's expense.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Slabs on Grade: After entire slab is finished, shrinkage cracks that may appear shall be patched as follows:
   1. Where slab is not exposed or where appearance is not important, cracks larger than 1/32 inch wide shall be filled with cement grout and struck off level with surface.
   2. Where slab is exposed and appearance is important, unsightly cracks shall be repaired in a manner satisfactory in appearance to Architect. If this cannot be accomplished, concrete shall be considered defective.

D. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   2. Honeycombed areas shall be removed down to sound concrete, coated with a bonding grout or approved compound and patched using a low shrinkage high bond mortar. Patched areas shall be cured by being kept damp for at least 5 days.
   3. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   4. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

E. 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 localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
   4. Correct other 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. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor

elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. 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 3/4-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.
7. 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.

F. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

G. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.12 CURING AND PROTECTION

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 305.1 for hot-weather protection during curing. Concrete shall be maintained at not less than 50 degrees F nor more than 100 degrees F for a period of 72 hours after being deposited.

B. Protection: Contractor shall be responsible for protection of finished concrete against injury by rain, cold, vibration, animal tracks, marking by visitors, vandalism, etc.

C. Provide additional curing agents or compounds, not necessarily listed herein, but as recommended and or required for use with shake type hardeners or other special coatings and coverings by their manufacturers for a complete and proper installation.

D. Where supplementary cementitious materials are used, extra precautions shall be taken to prevent premature drying.

E. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h 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.

F. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period. Forms heated by sun shall be kept moist during curing period.

G. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

H. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
1. Moisture Curing: Keep surfaces continuously moist for not less than seven (7) days with the following materials:
   a. Water.
   b. Continuous water-fog spray.

c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: 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 (7) days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply 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.
   a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a 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. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.
5. Interior slabs to receive adhesive-applied or resilient flooring: Cure only with moisture retaining cover. Do not cure with curing compound.
6. Interior slabs to receive thin set of tile: Cure only with moisture retaining cover. Do not cure with curing compound.

I. Flatwork: Flatwork to be exposed, stained, or painted shall have curing process submitted and approved by the architect prior to construction.
   1. Initial Curing Process:
      a. Mist Spraying: As soon as troweling of concrete surfaces is completed, exposed concrete shall be sprayed continuously with a special atomizer spray nozzle, capable of producing a fine mist. Spraying shall be done without any dripping of water from nozzle. Amount of spraying shall be such as to maintain surface of concrete moist without any water accumulating on surface. Maintain spraying for a minimum of 12 hours, or until such time as hereinafter described curing process is applied. Mist spraying will not normally be required when the ambient air temperature is below 90 degrees F.
   2. Final Curing Process:
      a. Water Curing: Concrete shall be kept wet by mechanical sprinklers or by any other approved method which will keep surfaces continuously wet.
      b. Saturated Burlap Curing: Finished surfaces shall be covered with a minimum of two layers of heavy burlap which shall be kept saturated during the curing period.
      c. Curing Compounds: Membrane curing compounds of chlorinated rubber or resin type conforming to ASTM C309 may be used only if specifically approved by Architect. Use of membrane curing compound will not be permitted on surfaces to be painted, or to receive ceramic tile, membrane water-proofing or hardeners and sealers.

Membrane curing compound may be used in areas to receive resilient floor tile, provided it is wax-free, compatible with adhesive used and approved by adhesive manufacturer. Agitate curing compounds thoroughly by mechanical means continuously during use and spray or brush uniformly in accordance with manufacturer's recommendations. Apply immediately following final finishing operation. All curing compounds shall conform to State of California Air Resources Board VOC Regulations.

d. Waterproof paper conforming to ASTM C 171, or opaque polyethylene film, may be used. Concrete shall be covered immediately following final finishing operation. Anchor paper or film securely and seal all edges in such a manner as to prevent moisture escaping from concrete.

J. Refer to Drawings for areas of concrete slab not to receive curing compounds or hardening compounds. Where concrete floors are to receive heavy duty coatings, waterproof coatings and the like, verify with coating installer the type of finish required for specified coating.

3.13 SURFACE HARDENER AND SEALER

A. Seal all interior exposed flatwork with clear sealer, except surfaces receiving ceramic tile, quarry tile, poured flooring or other special finishes specified, or as scheduled on the Drawings.
   1. Apply sealer in 2 or 3 coats, in accordance with manufacturer's directions, using the maximum quantity recommended.
      a. Concrete floors must be thoroughly cured for a minimum of 30 days and completely dry before treatment.
      b. Surfaces to be treated must be clean, free of membrane curing compounds, dust, oil, grease and other foreign matter.
      c. Upon completion, concrete surfaces shall be clean and without discoloration or traces of excess hardener left on the surface.

B. Apply sprayable hardener/sealer at locations as scheduled or as indicated on the Drawings. Apply in accordance with the manufacturer's favorably reviewed application instructions and recommendations.

3.14 GROUTING

A. Prepare and place grout materials at locations as indicated on the Drawings in accordance with the manufacturer's recommendations and installation instructions.

B. Pack grout materials solidly between bearing surfaces and bases or plates as indicated and to ensure no voids.

3.15 DEFECTIVE CONCRETE

A. Defective concrete shall mean any of the following:
   1. Concrete not meeting 100 percent of the specified 28 day compressive strength.
   2. Concrete exhibiting rock pockets, voids, spalls, streaks, cracks, honeycombing, that has any sawdust, wood, or debris embedded in it, or is otherwise defective, and in the Architect's judgment these defects impair the proper strength or appearance of the work
   3. Exposed reinforcing to extent that strength, durability, or appearance is adversely affected.
   4. Concrete significantly out of place, line, or level.
   5. Concrete not containing the required embedded items.
   6. Any concrete work not in accordance with the Specification and Drawings.

B. Upon determination that concrete strength is defective:
   1. Should cylinder tests fall below minimum strength specified, concrete mix for remainder of work shall be adjusted to produce required strength. Core samples shall be taken and tested from cast-in-place concrete where cylinders and samples indicate inferior concrete with less than minimum specified strength.
      a. Cores of hardened concrete shall be taken and tested in accordance with ASTM C 42 and C 39. Number and location of such cores shall be subject to the approval of Architect.
      b. Cost of core sampling and testing will be paid for by the Contractor.
      c. “85 percent” reduction in ACI 318 Section 26.12.4 will not justify low cylinder tests.

C. Upon determining that concrete surface is defective, Contractor may restore concrete to acceptable condition by cutting, chipping, pointing, patching, grinding, if this can be done without significantly altering strength of structure. Permission to patch defective areas will not be considered a waiver of the right to require removal if patching does not, in the opinion of the Architect, satisfactorily restore quality and appearance.

D. If core tests indicate that concrete is below the strength specified, or if patching does not restore concrete to specified quality and appearance, the concrete shall be deemed defective, and shall be removed and replaced without additional cost to the Owner.

E. No repair work shall begin until the procedure has been reviewed by the Architect and Structural Engineer.

3.16 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:
   1. Steel reinforcement placement.
   2. Steel reinforcement welding.
   3. Headed bolts and studs.
   4. Post-installed concrete anchors, per ICC-ES or IAPMO recommendations.
   5. Verification of use of required design mixture.
   6. Concrete placement, including conveying and depositing.
   7. Curing procedures and maintenance of curing temperature.
   8. Verification of concrete strength before removal of shores and forms from beams and slabs.

C. Concrete Tests: Provide special inspections and testing as described in the “Statement of Structural Special Inspections and Testing” within the structural drawings and as required by this section.
   1. A testing program is required prior to start of construction. Testing program to be done in Compliance with the CBC requirements and in collaboration with Testing Laboratory, Design team, contractor, owner and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in final testing program.
   2. The following tests shall be made by a recognized testing laboratory selected by the Owner and approved by the governing agency. All tests shall be in accordance with the previously mentioned standards and ACI 318 Section 26.12. A complete record of all tests and inspections shall be kept per CBC Section 1903A.1.
      a. Compressive Strength: Make and cure in accordance with ASTM C31. Test in accordance with ASTM C39 and ACI 318 Section 26.12.

1) A record shall be made of time and of locations of concrete from which samples were taken.
2) Four identical cylinders shall be taken from each pour of 150 cubic yards or 5000 square feet or part thereof, being placed each day per ACI 318 Section 26.12.2. One cylinder shall be tested at age 7 days, and two at age 28 days unless otherwise specified. Preserve remaining cylinder for future use.

b. Drying Shrinkage: (applies to lightweight concrete only unless noted otherwise).
1) A record shall be made of time cylinders and of locations of concrete from which samples were taken.
2) Three identical 4" x 4" x 11" specimens shall be made from same concrete as used in structure. Percent of shrinkage shall be reported at 21 days after 7 day moist curing period. Average results of 3 specimens shall be used as the accepted value. The value for laboratory cast specimens shall not exceed .075%. If field test specimens are used in lieu of laboratory specimens, a tolerance of +33% may be used.
3) Test specimens in accordance with ASTM C157.

c. Concrete consistency (slump) shall be tested in accordance with ASTM C143. Perform one slump test for each set of test cylinders taken.

3. Provide full time inspection per CBC Section 1704A.3 during the taking of test specimens and during the placing of all concrete and embedded steel.
4. Provide concrete batch plant inspections per ASTM C685.

D. Reinforcing Steel
1. See Section 03 20 00.

E. Survey and Adjustment: Continuously observe formwork operations, record such observations on a daily basis, and submit reports of the results. Instrument check forms before and during concrete placement to assure no movement has taken place. Make appropriate corrections to reposition displaced forms.
1. Measure floor and slab flatness and levelness as specified in “Floor Flatness and Levelness Tolerances” Section.
2. Certify, by written report submitted on a weekly basis, for each level and story that the elevations, finish lines and building lines of the hardened concrete are within tolerances, as substantiated by transit survey; also that all embeds and inserts have been installed within tolerance.

F. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

G. Permeability Test: Test concrete with waterproofing admixture according to COE CRD-C 48.

3.17 ADJUSTING AND CLEANING

A. Remove all debris, excess materials, tools and equipment resulting from or used in this operation at completion of this work.

B. Surfaces to be painted shall be smooth and free of substances such as dirt, wax, excessive laitance, grease or materials that would prevent proper bonding of finishes.
1. Removal of foregoing contaminants, and complete removal of parting and curing compounds affecting proper paint bond, shall be responsibility of this Section of Work. Sandblast cleaning shall not be employed without specific approval of Structural Engineer.

END OF SECTION 03 30 00

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Structural dimension lumber framing.
B. Exposed timber structural framing.
C. Nonstructural dimension lumber framing.
D. Rough opening framing for doors, windows, and roof openings.
E. Sheathing.
F. Preservative treated wood materials.
G. Fire retardant treated wood materials.
H. Miscellaneous framing and sheathing.
I. Communications and electrical room mounting boards.
J. Concealed wood blocking, nailers, and supports.
K. Drilling, saw cuts, knock-outs and framing for ventilation.
L. Wood sheathing backing at tile walls.
M. Miscellaneous wood nailers, furring, and grounds.
N. Steel hardware and attachment brackets

1.03 RELATED REQUIREMENTS

A. Section 06 17 00 – Shop-Fabricated Structural Wood

1.04 REFERENCE STANDARDS

A. Utilize the edition of the listed document as identified in the “Design Criteria Notes” in the structural drawings. If not listed in the “Design Criteria Notes”, use the edition adopted or referenced by the listed governing building code or material standard. If no specific edition is adopted, use the latest edition.
   1. ASTM A36 - Standard Specification for Carbon Structural Steel.
   2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   3. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   4. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
   5. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

6. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.AWPA - Wood Preservative: American Wood-Preservers' Association:
   a. U1, Use Category System: User Specification for Treated Wood.
   b. M4, Standard for the Care of Preservative-Treated Wood Products.
7. AWS B2.1 - Specification for Welding Procedure and Performance Qualification.
8. AWS D1.1 - Structural Welding Code - Steel.
9. ICC (CBC) – International/California Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
10. ICC (IECC) - International Energy Conservation Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
11. NDS – National Design Specification for Wood Construction
12. SDPWS - Special Design Provisions for Wind & Seismic
13. PS 1 - Structural Plywood.
14. PS 2 - Performance Standard for Wood Structural Panels.
15. PS 20 - American Softwood Lumber Standard.
16. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber.
17. WCLIB - Standard Grading Rules for West Coast Lumber No. 17.
18. WWPA - Western Lumber Grading Rules.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Certification:
   1. Preservative Treated Wood: Certification for waterborne preservative and that moisture content was reduced to 19 percent maximum, after treatment.

C. Shop-fabricated structural wood: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if shop-fabricated structural wood is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.

D. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

F. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1 and dated no more than 12 months before start of scheduled welding work.

1.06 QUALITY ASSURANCE

A. General:
   1. Coordinate the work of all trades to ensure proper placement of all materials, anchors, etc., as well as providing for openings and anchors for the installation of surface mounted materials and equipment.
   2. Qualifications for Workers: Provide sufficient skilled workers and supervisors who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.
   3. Rejection: In the acceptance or rejection of rough carpentry, no allowance will be made for lack of skill on the part of the workers.

B. Tests and Inspections:
   1. A testing program is required prior to start of construction. Testing program to be done in Compliance with the CBC requirements and in collaboration with Testing Laboratory, Design team, contractor, owner and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in final testing program.

C. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1 and no more than 12 months before start of scheduled welding work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Protection:
   1. After delivery, store all materials off the ground, covered, and in such a manner as to ensure proper ventilation and drainage and to protect against damage and the weather. Maintain wood at the maximum moisture levels indicated in Materials Section.
   2. Keep all material clearly identified with all grade marks legible; keep all damaged material clearly identified as damaged, and separately store to prevent its inadvertent use. Do not allow installation of damaged or otherwise non-complying material.
   3. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.
   4. Use all means necessary to protect the installed work and materials of all other trades.
   5. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Correct defective work within a two-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber:
   1. Meet requirements of following minimum grades. All grades shall be per WCLIB Grading Rules No. 17 or WWPA Western Lumber Grading Rules. Species Combination shall be Douglas Fir – Larch. Douglas Fir – Larch (North) and Douglas Fir (South) are not permitted without approval from the structural engineer.
   2. Furnish S4S unless otherwise noted.

B. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted in lieu of sustainably harvested lumber provided it is clean, denailed, and free of paint and finish materials, and other contamination; identify source.
   1. Where salvaged lumber is used for structural applications, provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc; www.alsc.org.

C. Lumber fabricated from recovered timber is permitted in lieu of sustainably harvested lumber, unless otherwise noted, provided it meets the specified requirements for new lumber and is free of contamination; identify source.

2.02 SOURCE QUALITY CONTROL

A. Grade Mark each piece of lumber. Marking must be done by recognized agency.
   1. Douglas Fir shall bear WCLIB or WWPA grade stamp.
   2. Pressure treated Douglas Fir shall bear AWPA Quality mark.

B. Wood Sheathing: Each panel shall be legibly identified as to type, grade and species by APA grade. If plies are spliced, the slope of the scarf shall not be steeper than 1:8. White pockets will not be permitted in face plies.

2.03 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Western Wood Products Association; WWPA or West Coast Lumber Inspection Bureau; WCLIB.

B. Sizes: Size to conform to rules of governing standard. Sizes shown are nominal unless otherwise noted.

C. Materials:
   1. Dimensional Lumber and Timbers:
      a. Maximum Moisture Content at Initial Use: As indicated on the Drawings
      b. Species: As indicated on the Drawings.
      c. Grade: As indicated on the Drawings.

D. Maximum Moisture Content “at Initial Use” shall be that point at which nails, screws, bolts, split rings, shear plates or other fasteners or the holes for said fasteners are placed in the wood.

E. All dimension lumber is assumed to be enclosed in the dry building envelope in the final service condition, unless noted otherwise, and free to dry to moisture content less than 19%.

F. All studs, plates, joists, rafters and beams 3x and thicker shall be free of heart center in accordance with the specified grading standards.

2.04 DIMENSION LUMBER FOR EXPOSED EXTERIOR APPLICATIONS

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Sizes: Size to conform to rules of governing standard. Sizes shown are nominal unless otherwise noted.

C. Materials:
   1. Dimensional Lumber and Timbers:
      a. Maximum Moisture Content at Initial Use: As indicated on the Drawings.
      b. Species: As indicated on the Drawings.
      c. Grade: As indicated on the Drawings.

D. All studs, plates, joists, rafters and beams 3x and thicker shall be free of heart center in accordance with the specified grading standards.

2.05 SHOP-FABRICATED STRUCTURAL WOOD

A. At Contractor's option, shop-fabricated structural wood may be substituted for concealed dimension lumber and timbers.

B. Shop-fabricated structural wood: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.
   1. Columns: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published modulus of elasticity, E: 1,800,000 psi, minimum.
   2. Beams: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published modulus of elasticity, E: 1,800,000 psi, minimum.
   3. Headers Not Longer Than 48 inches: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber.
   4. Products:
      a. Boise Cascade Company: www.bc.com.
      b. RedBuilt LLC: www.redbuilt.com.
      c. Weyerhaeuser Company: www.weyerhaeuser.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 WOOD SHEATHING

A. Floor Sheathing : PS 1 or PS 2 APA rated sheathing.
   1. Thickness and Type: As indicated on Drawings.
   2. Glue: Exterior
   3. Edges: Tongue and groove.

B. Roof Sheathing : PS 1 or PS 2, APA rated sheathing.
   1. Thickness and Type: As indicated on Drawings.
   2. Glue: Exterior
   3. Edges: Square.

C. Wall Sheathing : PS 1 or PS 2, APA rated sheathing.
   1. Thickness and Type: As indicated on Drawings.
   2. Glue: Exterior
   3. Edges: Square.

D. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

E. Other Applications:
   1. Where indicated on the Architectural Drawings as interior wall backing behind tile and in all toilet rooms behind sheet rock, to be C-C APA rated sheathing with exterior glue. Thickness shall be 5/8-inch at all locations.
   2. Flooring: C-C APA Performance rated tongue and groove with exterior glue. Thickness type and grade shall be as indicated on the Drawings.
   3. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   4. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   5. Other Locations: PS 1, C-D Plugged or better.

2.07 ACCESSORIES

A. Rough Hardware Fastenings and Connections: All types including bolts, lag screws, nails, spikes, screws, washers and other rough hardware, of kinds that may be purchased and that

require no further fabrication, shall be furnished and installed for all finish and rough carpentry and shall conform to NDS Standards and dimensions. All hardware exposed to weather shall be hot-dipped galvanized per ASTM A153 Standards. All nails used into pressure treated lumber shall be hot-dipped galvanized per ASTM A153 or stainless steel.

1. Common wire nails or spikes shall be used unless noted otherwise on the Drawings. Box nails and sinker nails are not permitted. Vinyl coating is permitted on nails when not exposed to weather. Nails and staples shall conform to requirements of CBC.
2. Bolts: Bolt material shall conform to ASTM A307, Grade A. Bolt dimensions shall conform to ANSI/ASME B18.2.1 with hex head of sizes indicated.
3. Lag Screws: Lag screws shall conform to ASTM 307, Grade A. All lag screws shall have hex heads where exposed.
4. Washers: Standard flat washers shall conform to ANSI B18.22.1, Type A, Wide Pattern. Steel plate washers shall be Simpson BP or BPS or equivalent. Malleable iron washers shall be standard malleable iron washers.
5. Power-Actuated Fasteners: Tempered steel pins with special corrosive resistant plating or coating. Pins shall have guide washers to accurately control penetration. Fastening shall be accomplished by low-velocity piston-driven power activated tool. Pins and tool shall be as manufactured by Hilti Fastening Systems or equivalent. See Drawings for size, type and embedment.
6. Expansion Anchors: See Section 03 30 00 for anchors to concrete and Section 04 20 00 for anchors to masonry.
7. Adhesive Anchors: See Section 03 30 00 for anchors to concrete and Section 04 20 00 for anchors to masonry.
8. Fabricated Metal Timber Framing Connectors: Connectors shall be punched for nailing and bolting. Nails and nailing shall conform to the manufacturer's instructions with a nail provided for each punched hole. All connectors must have specific ICC approval. Types as noted on Drawings are Simpson Strong-Tie. Hardware suppliers other than Simpson shall submit a comparative material list itemizing product designation, load rating and supported member size for review by the enforcement agency and the Structural Engineer.
    a. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing complying with ASTM A653.
9. Steel Connections and Brackets: ASTM A36 weldable quality, galvanize per ASTM A123 or ASTM A666, Type 304 stainless steel where indicated on the Drawings.
    a. Fabricate steel hardware and connections with joints neatly fitted, welded, and ground smooth
    b. Welding: Perform welding in accordance with AWS D1.1.
10. Anchor Bolts: ASTM F1554 Gr. 36 heavy hex headed anchor rods and ASTM A563 nuts; hot-dip galvanized to meet requirements of ASTM A153, matching washers.

B. Building Paper: Fed. Spec. UU-B-790a, Type I, Grade B (15 lb. min. unless noted elsewhere).

C. Subfloor Adhesives: Gap-filling construction adhesive for bonding wood structural panels to wood-based floor system framing; complying with ASTM D3498.

D. General Purpose Construction Adhesives: Comply with ASTM C557.

E. Radiant Barrier: Aluminum radiant barrier; designed for factory laminating to roof sheathing.
1. Products:
    a. Louisiana-Pacific Corporation; TechShield: www.lpcorp.com/#sle.
    b. Substitutions: See Section 01 60 00 - Product Requirements.

2.08 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Fire Retardant Treatment:
   1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Treat exterior rough carpentry items.
      c. Treat exposed exterior rough carpentry items, including stairways, balconies, and covered walkways
      d. Do not use treated wood in direct contact with the ground.
   2. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Interior rough carpentry items are to be fire retardant treated.
      c. Treat rough carpentry items as indicated.
      d. Do not use treated wood in applications exposed to weather or where the wood may become wet.

C. Preservative Treatment:
   1. All wood in contact with concrete or masonry shall be preservative treated.
   2. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
   3. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative.
      a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
   4. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative.
      a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
      b. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

PART 3 EXECUTION

3.01 PREPARATION

A. Inspection:
   1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly proceed.
   2. Verify that rough carpentry may be performed in strict accordance with the original design and all pertinent codes and regulations.

B. Discrepancies: In the event of discrepancy, immediately notify Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Protect all work in progress and all work installed, as well as the work of all other trades. Any work damaged as a result of the work under this section shall be corrected to its original condition or replaced if directed by the Architect at no increase in cost to the Owner.

B. Ventilation: Contractor shall include all labor and materials necessary to provide ventilation requirements of roof overhangs, eaves, attics, and all other components of the building required by codes to be ventilated. Work shall include removing knock-outs in wood I-joists for cross ventilation, drilling of blocking, wood sheathing, and other wooden components of the structure necessary to comply with requirements of the CBC for ventilation of buildings.

C. Select material sizes to minimize waste.

D. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

E. General: All rough carpentry shall produce joints true, tight, and well nailed with all members assembled in accordance with the Drawings and with all pertinent codes and regulations.

F. Selection of Lumber Pieces: Carefully select all members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making proper connections. Cut out and discard all defects which will render a piece unable to serve its intended function.

G. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

H. Shimming: do not shim any framing component.

I. Care shall be taken that notching and boring of members is in strict conformance with the Drawings and that there are no over-cuts.

J. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 INSTALLATION - FRAMING AND ROUGH CARPENTY

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Sills: Shall be in long lengths of sizes shown, fastened with anchor bolts as indicated, a minimum of two anchor bolts per piece. Place steel plate washers (but not standard flat or malleable iron washers) under nuts bearing on wood. Set sills level and true.

D. Studs, Posts and Columns: Shall be full length. Corners shall be as detailed. Partitions or walls containing plumbing, heating or other piping shall be so formed as to give proper clearance for materials. Cut members as required to provide full bearing at ends. Connect to structure as indicated.

E. Plates: Shall be full length of wall segment or 12-foot minimum and spliced as shown.

F. Joists and Beams: Shall be full span length and spliced over bearings unless shown otherwise. Install with crown side up. Beams or headers indicated to be built up of two or more joists shall be fabricated on the job using full length members. For two piece 2x members, stitch nail pieces together with 16d common nails spaced not over 12 inches c.c. and staggered. Clinch nails protruding through members. For three or more piece members, stitch bolt pieces together with ½" bolts spaced not over 12 inches c.c. and staggered.
   1. Provide double joists and headers at all openings through roof unless otherwise shown on Drawings.
   2. Provide typical headers at all openings through walls where one or more studs are required to be cut. For penetration through walls narrower than stud spacing, provide solid blocking on all sides for fastening finish materials.

3.04 INSTALLATION - BLOCKING, NAILERS, AND SUPPORTS

A. Blocking: Blocking shall be same thickness and width of studs or joists unless shown otherwise. Blocking shall not be spaced over 8'-0" c.c. Install fire blocking in accordance with CBC. Horizontal fire blocking in walls shall be placed at floor lines and ceiling lines unless noted otherwise. Install blocking at all sheathing joints where noted on the Drawings. Install wall width full height solid blocking at floor joists beneath all posts in walls. Blocking shall be installed around all wall, floor and roof penetrations.

B. Provide the following specific nonstructural framing and blocking:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Handrails.
   4. Grab bars.
   5. Towel and bath accessories.
   6. Wall-mounted door stops.
   7. Chalkboards and marker boards.
   8. Wall paneling and trim.
   9. Joints of rigid wall coverings that occur between studs.

3.05 INSTALLATION - SHEATHING

A. Wood Sheathing: Install to pattern indicated and provide blocking at joints where noted on the Drawings. Center all joints over bearing supports. Nail to framing as indicated. Install wood sheathing with face plies perpendicular to joists unless indicated otherwise. Wall wood sheathing shall continue uninterrupted by ceilings or soffit from floor to floor or floor to roof unless specifically detailed on the Structural Drawings.

3.06 INSTALLATION - FASTENERS

A. Nailing: Except as otherwise indicated on Drawings or specified, all nailing shall be as required by CBC Table 2304.10.2 - Fastening Schedule.
   1. Nails or Spikes shall be common wire unless noted otherwise. Penetration of nails or spikes shall be one-half the length of the nail or spike into the piece receiving the point. However, to connect pieces 2" in thickness, 16d nails shall be used unless noted otherwise.
      a. Bore holes for nails wherever necessary to prevent splitting.
      b. Use finish or casing for finish work.
      c. Use of machine nailing is subject to a satisfactory installation of nails. Minimum edge distances shall be maintained. Nails installed through sheathing with nail guns shall not penetrate into the outer plies deeper than hand nailing. Submittal of guns and nails is required.
      d. All nailing into Pressure-Treated lumber shall utilize hot-dipped zinc coated galvanized nails or stainless steel nails per CBC.

B. Bolts and Lag Screws: Bolts shall be sizes indicated on Drawings. Holes for bolts shall be 1/16-inch larger than the bolt diameter. Malleable, Steel plate or standard flat washers shall be used where heads or nuts would otherwise bear directly on wood surfaces. Malleable or plate washers shall be used on all anchor bolts. Cut washers are not permitted. Lag screws shall be screwed (not driven) into place. For the shank, holes shall be bored the same depth and diameter as shank. For threaded portion, holes shall be pre-drilled to 50% of the shank diameter, except as follows:
   1. 7/8” Diameter Lag Screw: Pre-Drill 1/2” diameter hole.
   2. 1” Diameter Lag Screw: Pre-Drill 5/8” diameter hole.
   3. Soap Lag screws prior to installation.
   4. Tighten all bolts and screws before closing in.

C. Framing Devices: Install according to the manufacturer’s instructions unless otherwise noted.

3.07 INSTALLATION, MISCELLANEOUS

A. Install all items under other sections specified to be furnished and installed in other sections which relate to the rough carpentry work.

B. Miscellaneous Carpentry Work not included under other sections but, indicated or required yet not specified elsewhere shall be furnished and installed hereunder, including appropriate fastening devices. Contractor shall provide miscellaneous carpentry work for all sections and divisions of work identified.

C. Wood Furring, Stripping: Install as shown or required to provide nailing materials or passage of pipes, conduits, etc., not otherwise accommodated including ceiling stripping for gypsum drywall construction.

D. Bridging: Space not over 8'-0" c.c. for spans over 16'-0". Joists 8 inches or less in depth shall not require bridging unless specifically indicated.

E. Solid Wood Backing: Solid wood backing shall be provided for all wall and ceiling finishes and for supporting of mounted items for all trades, including but not limited to metal toilet partitions, toilet room accessories, frames, cabinets, casework, mirrors, trim, applied wall finishes, athletic equipment, food service equipment, piping, conduit, ducts, etc. Contractor shall coordinate placement of backing and supports with Subcontractor supplying mounted items.

F. Building Paper: Install in all locations indicated except where included in other sections of the specifications.

G. Cant Strips and Crickets: Shape to sizes shown. Rigidly fasten to construction. Form neat mitered corners.

H. Wood Sheathing Backing: All toilet rooms, restrooms, single or joint occupancy shall have all walls backed with 5/8-inch thick wood sheathing with no surface voids. Install sheathing between the framing members and wallboard. The same wood sheathing shall also be provided and installed at all tile locations. At tile locations wood sheathing shall be installed between the framing members and the resin-cement backing board.

I. Wood Curbs for Equipment: Construct all wood curbs for roof mounted equipment as detailed. Provide all miscellaneous blocking, bracing, supports, and other wood items as shown or required to complete the work.

J. Plywood Backing for Electrical, telephone, and similar types of wall mounted equipment shall be provided hereunder where required. Plywood shall be 3/4-inch thick exterior A-C plywood with 'A' face exposed.

K. Fire/Draft Stops: Construct fire and drafts stops in furred attic spaces where indicated or required by CBC code. Unless otherwise indicated on Drawings construct of not less than 5/8-inch Type 'X' gypsum wallboard or ½" wood sheathing, adequately supported by 2x4's at 24 inches c.c., braced diagonally to the roof structure. Draft stop and installation work shall conform to code requirements.

L. Shoring and Bracing: Shore or brace for temporary support of all work as required during the construction period except any shoring and bracing specified and included under other sections of these specifications.

Temporary Enclosures: Provide and maintain all barricades and enclosures required to protect the work in progress.

M. Protect all work in progress and all work installed, as well as the work of all other trades. Any work damaged as a result of the work under this section shall be corrected to its original condition or replaced if directed by the Architect at no increase in cost to the Owner.

N. Ventilation: Contractor shall include all labor and materials necessary to provide ventilation requirements of roof overhangs, eaves, attics, and all other components of the building required by codes to be ventilated. Work shall include removing knock-outs in wood I-joists for cross ventilation, drilling of blocking, wood sheathing, and other wooden components of the structure necessary to comply with requirements of the CBC for ventilation of buildings.

3.08 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.09 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

C. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.10 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

3.11 CLEANING

A. Waste Disposal: See Section 01 74 19 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.12 SCHEDULES

A. Lower Level Floor Joists: MSR Lumber.

B. Upper Level Floor and Ceiling Joists, Rafters: Spruce-Pine-Fir, No. 2 Grade.

C. Exposed Beams: Western Cedar, Select Structural Grade.

END OF SECTION 06 10 0

SECTION 06 17 00
SHOP-FABRICATED STRUCTURAL WOOD

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Shop-fabricated structural wood (SFSW).

B. All blocking, bridging, etc., for the installation of members.

C. Clips, angles, straps, hangers, etc., incidental to installation of members.

D. Nails, bolts, washers and other fasteners used for erecting and securing members.

1.03 RELATED REQUIREMENTS

A. Section 06 10 00 – Rough Carpentry.

1.04 REFERENCE STANDARDS

A. AITC 117 - Standard Specifications for Structural Glued Laminated Timber of Softwood Species.

B. AITC A190.1 - American National Standard for Wood Products - Structural Glued Laminated Timber.

C. ASTM D2559 - Standard Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions.

D. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

F. AWPA U1 - Use Category System: User Specification for Treated Wood.

G. AWS B2.1 - Specification for Welding Procedure and Performance Qualification.

H. AWS D1.1 - Structural Welding Code - Steel.

I. FM (AG) - FM Approval Guide Current Edition.

J. NDS – National Design Specification for Wood Construction

K. SDPWS - Special Design Provisions for Wind & Seismic

L. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber.

M. UL (DIR) - Online Certifications Directory Current Edition.

N. UL (FRD) - Fire Resistance Directory Current Edition.

O. WCLIB - Standard Grading Rules for West Coast Lumber No. 17.

P. WWPA - Western Lumber Grading Rules.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials, application technique and resultant performance information.

C. Shop Drawings: Indicate framing system, sizes and spacing of members, loads and cambers, bearing and anchor details, bridging and bracing, and framed openings.
   1. Show large scale details of connections, connectors and other accessories.
   2. Indicate species and laminating combination, adhesive type, and other variables in required work.

D. Manufacturer's Qualification Statement.

1.06 QUALITY ASSURANCE

A. Manufacturing facility shall be approved by an independent inspection agency approved by the International Accreditation Service, Inc. (IAS).

B. Each Shop-fabricated structural wood member shall be stamped with an identifying mark. Mark shall include all pertinent data, such as grade and species of lumber, plant number, independent inspection agency, logo, ICC ES report number and other such information as may be required.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver undamaged products to site in manufacturer's protective wrappings with legends intact. Store on site secure from weather, soil and physical damage.

B. Transport, handle and store in strict accordance with the manufacturer's recommendations. Use padded, non-marring slings.

C. Architectural Appearance Grade members shall be shipped, handled and stored with complete weather and damage protection wrapping. Maintain wrappings in place until immediately prior to deck installation.

D. Industrial Appearance Shop-fabricated structural wood members shall be wrapped in a water resistant covering during transit. Contractor shall be responsible for protection during hauling and unloading at job site.

E. If members must be stored prior to erection, they shall be stored in a vertical position off the ground, covered and protected from weather.

F. Protect members to AITC requirements for not wrapped.

G. Leave individual wrapping in place until finishing occurs.

H. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 PRODUCTS

2.01 SHOP-FABRICATED STRUCTURAL WOOD (SFSW)

A. SFSW members shall be of the types and sizes indicated on Drawings and as specified here. Shop-fabricated structural wood shall have specific ICC approval, and shall meet all specified

structural design properties. Proposed SFSW members may be used only if equivalent, in the Architect's opinion, to the SFSW specified.

2.02 MATERIALS

A. Lumber:
   1. Laminated Veneer Lumber (LVL): LVL shall be manufactured in accordance with the manufacturer's ICC-ES Report and have properties equal to or greater than as specified on the Drawings. Lumber species, thickness, etc. shall be such that the nailing capacity is equal to or better than that specified.
   2. Parallel Strand Lumber (PSL): PSL shall be manufactured in accordance with the manufacturer's ICC-ES Report and have properties equal to or greater than as specified on the Drawings. Lumber species, thickness, etc. shall be such that the nailing capacity is equal to or better than that specified.
   3. Laminated Strand Lumber (LSL): LSL shall be manufactured in accordance with the manufacturer's ICC-ES Report and have properties equal to or greater than as specified on the Drawings. Lumber species, thickness, etc. shall be such that the nailing capacity is equal to or better than that specified.
   4. Various SFSW products shall only be used where specifically indicated on the Drawings. No substitutions shall be made without written approval.
   5. Lumber fabricated from old growth timber is not permitted.
   6. Provide sustainably harvested lumber, certified or labeled as specified in Section 01 60 00.
   7. Provide lumber harvested within a 500 mile radius of the fabrication site.
   8. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted provided it is clean, denailed, and free of paint and finish materials, and other contamination; identify source.
      a. Where used for structural applications, provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc.
   9. Lumber fabricated from timber recovered from riverbeds or otherwise abandoned is permitted, unless otherwise noted, provided it is clean and free of contamination; identify source.
      a. Where used for structural applications, provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc.

B. Adhesive:
   1. According to manufacturers ICC ES Report.

C. Types:
   1. Sizes, properties and additional information as shown on the Drawings.

D. Laminating Adhesive: Tested for wet/exterior service in accordance with ASTM D2559.

2.03 FABRICATION

A. Fabrication shall be in compliance with manufacturer's ICC ES Report.
   1. Fabrication shall be in accordance with best practices with adequate plant equipment and under supervision of properly qualified personnel.
   2. Moisture content of components at time of gluing shall comply with the manufacturer's ICC ES Report.

B. Boring of holes in members shall be in strict conformance with the Drawings. Notching is prohibited except where specifically detailed.

C. Verify dimensions and site conditions prior to fabrication.

D. Cut and fit members accurately to length to achieve tight joint fit.

E. Field cuts and holes in preservative treated members shall be preservative treated and sealed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this Section, carefully inspect and verify that the installed work of all other trades is complete to the point where this installation may properly commence.

B. Verify that specified items may be installed in accordance with the approved design.

C. In the event of a discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.02 PREPARATION

A. Coordinate placement of bearing items.

3.03 PROTECTION

A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

3.04 HANDLING

A. Use equipment and methods that avoid damages that may impair strength of SFSW members. Sharp instruments and unprotected wire rope, chain slings and the like shall not be permitted.

3.05 ERECTION

A. Shop-fabricated structural wood members are to be erected and installed in accordance with the Drawings and manufacturer’s recommendations.

B. Set structural members level and plumb, in correct positions or sloped where indicated.

C. Provide temporary bracing and anchorage to hold members in place until permanently secured.

D. Fit members together accurately without trimming, cutting, splicing, or other unauthorized modification.

E. Swab and seal the interior wood surfaces of field drilled holes in members with primer.

3.06 TOLERANCES

A. Framing Members: 1/2 inch maximum from true position.

3.07 CLEANUP

A. Keep premises free from accumulated waste materials, rubbish and debris resulting from this work. Upon completion, remove tools, appliances, surplus materials, waste materials, rubbish, debris and accessory items used in or resulting from said Work, and legally dispose of off the site.

END OF SECTION 06 17 00

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 -GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Miscellaneous sheet metal fabrications.

B. Related Requirements:

   1. Section 061000 "Rough Carpentry"

1.2 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining wall materials, joints, and seam to provide leakproof, secure, and noncorrosive installation.

1.3 QUALITY ASSURANCE

1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

1.5 ACTION SUBMITTALS

A. Product Data:
   1. Miscellaneous sheet metal fabrications.

B. Product Data Submittals:

   1. Underlayment materials.

C. Shop Drawings: For sheet metal flashing and trim.

   1. Include details for forming, including profiles, shapes, seams, and dimensions.
   2. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
   3. Include details of termination points and assemblies.
   4. Include details of special conditions.

D. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

   1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
   2. Protect stored sheet metal flashing and trim from contact with water.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.7 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

PART 2 - PRODUCTS

1.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing", and, SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation, or, aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation, Grade 40; prepainted by coil-coating process to comply with ASTM A755/A755M.

1. Surface: Smooth, flat.
2. Exposed Coil-Coated Finish:

    a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.

3. Color: As selected by Architect from manufacturer's full range.

1.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt;

nonperforated.

B. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer in accordance with underlayment manufacturer's written instructions.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. GCP Applied Technologies Inc.

b. Henry Company; a Carlisle company

2. Source Limitations: Obtain underlayment from single source from single manufacturer.
3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F or lower.

C. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

1.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. Fasteners for Copper, Zinc-Tin Alloy-Coated Copper, or Copper-Clad Stainless Steel Sheet: Copper, hardware bronze or passivated Series 300 stainless steel.
2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
4. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329/F2329M.

C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

D. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

1.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. 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.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Seams:

1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

1.6 WALL SHEET METAL FABRICATIONS

A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- long, but not exceeding 12-foot- long, sections, under copings, and at shelf angles. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches beyond each side of wall openings; and form with 2-inch- high, end dams. Fabricate from the following materials:

1. As specified on drawings

1.7 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment Support Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lap joints not less than 2 inches.

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install exposed sheet metal flashing and trim with limited oil-canning, and free

of buckling and tool marks.

6. Do not field cut sheet metal flashing and trim by torch.
7. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

E. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch into sealant.
b. Form joints to completely conceal sealant.
c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures.

1) Do not install sealant-type joints at temperatures below 40 deg F.

3.4 INSTALLATION OF WALL FLASHINGS

A. Install sheet metal wall flashing to intercept and exclude penetrating moisture in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed

tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.5 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering. Clean and neutralize flux materials. Clean off excess sealants.

3.6 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in 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, as determined by Architect.

END OF SECTION 07 62 00

SECTION 07 92 00 - 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.

1.2 SUMMARY

A. This Section includes joint sealants.
   1. Silicone joint sealants.
   2. Urethane joint sealants.
   3. Silyl-terminated polyether joint sealants.
   4. Butyl joint sealants.
   5. Latex joint sealants.

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.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 4-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint material location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

E. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.

F. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

G. Qualification Data: For Installer.

H. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
   1. Materials forming joint substrates and joint-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.

I. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

J. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Reference Standards:
   1. Title 19 CCR, Public Safety, State Fire Marshall Regulations
   2. Title 24 CCR, Part 1 - 2022 California Building Standards Administrative Code
   3. Title 24 CCR, Part 2 - 2022 California Building Code, VOL. 1&2 (CBC) (2021 IBC, as Amended by CA
   4. Title 24 CCR, Part 6 - 2022 California Energy Code
   5. Title 24 CCR, Part 9 - 2022 California Fire Code (CFC) (2021 IFC, as Amended by CA
   6. Title 24 CCR, Part 10 - 2022 California Existing Building Code
   7. Title 24 CCR, Part 11 - 2022 California Green Building Standards Code (Calgreen Code)

B. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

C. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and

installation methods specified in this Section.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 ENVIRONMENTAL REQUIREMENTS

A. Adhesives, sealants and caulks shall meet the following requirements of the following standards:
   1. Adhesives, adhesive bonding primers, adhesive primers, Sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules as applicable or SCAQMD Rule 1168 VOC limits as shown on tables 5.504.4.1 and 5.504.4.2. Such products shall also comply with rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene) except aerosol products as specified in subsection 2 noted below.
   2. Aerosol adhesives and smaller unit sizes of adhesives and sealant or caulking compounds (in units, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on the use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with section 94507.

1.7 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 joint-sealant manufacturer or are below 40 deg F.
   2. When joint substrates are wet.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated. Notify Architect/ Inspector of the non-compliant condition.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 WARRANTY

A. 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 and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: 5 years (20 years for Silicone Sealants) from the date of Final

Completion.

B. 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 and other requirements specified in this Section within the specified warranty period.
   1. Warranty Period*:* 2 years from the date of Final Completion.

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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Joint Sealants: Subject to compliance with requirements, provide either the named product or an equal product by one of the other manufacturers specified.
   1. Dow Corning Corp.
   2. Pecora Corporation.
   3. United States Gypsum Co
   4. Tremco, Inc.
   5. Bostik Construction Products Division
   6. General Electric Sealants
   7. WR Meadows
   8. Or equal.

2.2 MATERIALS, GENERAL

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

C. Compatibility: 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.

D. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   1. Sealants: 250 g/L.
   2. Sealant Primers for Nonporous Substrates: 250 g/L.
   3. Sealant Primers for Porous Substrates: 775 g/L.

E. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

F. Low-Emitting Interior Sealants: Sealants and sealant primers shall comply with the testing and product requirements of the California Department of Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.3 JOINT SEALANTS

A. Type A - Acrylic Latex: One-part, non-sag, mildew resistant acrylic emulsion compound complying with ASTM C834, Type OP, Grade NF, formulated to be paintable.

   1. Tremco Inc., “Tremflex 834”
   2. Bostik Construction Products Division, “Chem-Calk 11200”.
   3. Pecora Corporation, “AC-20”

B. Type B - Butyl Sealant: One-part, non-sag solvent-release-curing sealant complying with ASTM 1311 and formulated with a minimum of 75 percent solids.
   1. Tremco Inc., Tremco “Bitul Sealant”
   2. Bostik Construction Products Division, “Chem-Calk 300”.
   3. Pecora Corporation, “BC-158”.

C. Type C - Silicone Sealant: One-part nonacid-curing silicone sealant complying with ASTM C920, Type S, Grade NS, Class 25.
   1. Dow Corning Corp., “Dow Corning 791”.
   2. General Electric Co., “SCS 2000 Silpruf”.
   3. Pecora Corp., “890FTS”

D. Type D - Neutral-Curing Silicone Sealant: One part medium modulus neutral-curing sil- icone sealant complying with ASTM C920, Type S, Grade NS, Class 25.
   1. Dow Corning Corp., “Dow Corning 899”.
   2. General Electric Co., “SSG 4000AC Ultraglaze”.
   3. Tremco, Inc., “Spectrum 3”.
   4. Pecora Corp., “895NST”.

E. Type E - One-Part Mildew-Resistant Silicone Sealant: Complying with ASTM C920, Type S, Grade NS, Class 25.
   1. Dow Corning Corp., “Dow Corning 791”.
   2. General Electric Co., “SCS 1700 Sanitary”.
   3. Tremco, Inc., “Proglaze”
   4. Pecora Corp., “860” or “894NST”

F. Type F - Multi-Part Pourable Sealant: Complying with ASTM C920, Type M, Grade P, Class 25. Shore A hardness +40.
   1. Tremco, Inc., “Vulkem 45SSL”.
   2. Pecora Corp., “Dynatred” or “Urexpan NR-200”.
   3. W.R. Meadows, “Pourthane SL”.

G. Type G - Acoustical Sealant: Nondrying, nonhardening permanently flexible conform- ing to ASTM D217.
   1. Pecora Corp., “BA-98 Acoustical Sealant”
   2. Tremco, Inc., “Tremco Acoustical Sealant”.
   3. United States Gypsum Co., “Sheetrock Acoustical Sealant”.

H. Type H - Sound and Fire Protective Rated Moldable Putty Pads as wall opening protec- tive materials when code required in fire-rated walls.
   1. Not Used
   2. CP 506 Smoke and Acoustic Sealant by Hilti
   3. CS-SL SA Smoke and Acoustic Sleeve by Hilti

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material 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.

B. Cleaners for Nonporous Surfaces: Chemical cleaners 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. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width

E. Bond Breaker: Pressure-sensitive tape recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with manufacturers and document requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Beginning of installation means installer accepts existing substrate.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-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), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, 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. Porous joint substrates include examples of the following:

   a. Concrete.

B. Remove laitance and form-release agents from concrete.

1. 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. Nonporous joint substrates include examples of the following:

    a. Metal.
    b. Glass.

C. Verify that joint backing and release tapes are compatible with sealant.

D. Perform preparation in accordance with ASTM C1193.

E. Protect elements surrounding the Work of this Section from damage or disfiguration Joint Priming:

F. Prime joint substrates, where recommended in written form by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. 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.

G. Joint Priming: Prime joint substrates, where recommended in written form by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. 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 surfacesMasking Tape: Use masking tape 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. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of type indicated 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 absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

F. 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 in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after 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 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. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

4. Provide flush joint profile according to Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth according to Figure 8C in ASTM C 1193.
    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

H. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

I. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:

1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.
3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
4. Complete installation of sealant system in horizontal joints before installing in

vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.

J. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

3.4 Not used

3.5 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 of products in which joints occur.

3.6 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

END OF SECTION 07 92 00

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Standard and custom hollow metal doors and frames.
2. Light frames and glazing installed in hollow metal doors.

B. Related Sections:

1. Division 00 Section “General Conditions”.
2. Division 09 Sections "Painting" for field painting hollow metal doors and frames.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
7. ASTM A924 - Standard Specification for General Requirements for Steel

Sheet, Metallic-Coated by the Hot-Dip Process.

8. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
9. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
10. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
11. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
12. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
13. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
14. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
15. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire- resistance rating, and finishes.

B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

C. Shop Drawings: Include the following:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of anchorages, joints, field splices, and connections.
6. Details of accessories.
7. Details of moldings, removable stops, and glazing.
8. Details of conduit and preparations for power, signal, and control systems.

D. Samples for Verification:

1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal doors and frames through one source from

a single manufacturer wherever possible.

B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40" above sill) or UL 10C.

1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
3. Smoke Control Door Assemblies: Comply with NFPA 105.

    a. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.

E. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-

inch high wood blocking. Do not store in a manner that traps excess humidity.

1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

B. Building Information Modeling (BIM) Support: Utilize designated BIM software tools and obtain training needed to successfully participate in the Project BIM processes. All technical disciplines are responsible for the product data integration and data reliability of their Work into the coordinated BIM applications.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:

1. CECO Door Products (C).
2. Curries Company (CU).
3. Pioneer Industries (PI).

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.

B. Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard polyurethane. Where indicated, provide doors fabricated as thermal-rated assemblies with a minimum R-value of
   3.2 or better.
3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.

4. Vertical Edges: Vertical edges to have the face sheets spot welded and filled full height with an epoxy filler. Welds are to be ground, filled and dressed smooth. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements

indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Design: Flush panel.

2. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.
3. Vertical Edges: Vertical edges to have the face sheets spot welded and filled full height with an epoxy filler. Welds are to be ground, filled and dressed smooth. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).
4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

D. Manufacturers Basis of Design:

1. Curries Company (CU) - Polystyrene Core - 707 Series.

2.4 HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

B. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.

1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Frames: Minimum 14 gauge (0.067-inch -1.7-mm) thick steel sheet.
3. Manufacturers Basis of Design:

a. Curries Company (CU) – M Series.

C. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.

1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.
3. Manufacturers Basis of Design:

a. Curries Company (CU) - M Series.

D. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.

E. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors:
   1. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.
   2. Compression Type for Drywall Slip-on (Knock-Down) Frames: Adjustable compression anchors.

B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LIGHT OPENINGS AND GLAZING

A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.

D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.8 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Doors:

1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
3. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
4. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".

D. Hollow Metal Frames:

1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

    a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.

3. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.

4. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise butt type hinges at top hinge locations.Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".

5. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
6. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
7. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
8. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Three anchors per jamb up to 60 inches high.
        2) Four anchors per jamb from 60 to 90 inches high.
        3) Five anchors per jamb from 90 to 96 inches high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
        5) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.
9. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".

10. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
11. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
12. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
13. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.9 STEEL FINISHES

A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

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 the Work.

B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.

C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."

D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.

1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances

specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

   a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
   b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.

   c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

D. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

3.5 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

END OF SECTION 08 11 13

SECTION 09 24 00 – CEMENT PLASTER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Work includes all labor, materials, and equipment necessary to install plaster system.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry

1.3 REFERENCES

A. ASTM C150 – Standard Specification for Portland Cement

B. ASTM C1032 - Standard Specification for Woven Wire Plaster Base

C. ASTM C933 - Standard Specification for Welded Wire Lath

D. ASTM C144/C897 – Aggregate for Job-Mixed Portland Cement-Based Plaster

E. ASTM C926 – Application of Portland Cement-Based Plaster

F. ASTM C1063 – Installation of Lathing and Furring for Portland Cement Based Plaster

G. PCA (Portland Cement Association) – Plaster (Stucco) Manual

H. ICC-ES Acceptance Criteria for Weather-resistive Barriers (AC38)

1.4 SYSTEM DESCRIPTION

A. General: Portland cement plaster is comprised of a water-resistive barrier, sheathing, lath, scratch, brown coats, and a finish coat. Minimum nominal ¾ inch cement thickness.

1.5 SUBMITTALS

A. Product Data: All product data sheets, evaluation reports, details, and warranty information that pertain to the project in accordance with Section 01 33 00, "Submittal Procedures".

B. Samples: Submitted upon request.

1. Samples of the finish coat shall be of an adequate size as required to represent texture to be utilized on the project and produced using the same techniques and tools required to complete the project.

2. Retain approved samples at the construction site throughout the application process.

1.6 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: System component materials shall be manufactured or approved by Cement plaster Products International, Inc., or equal, and shall be distributed by the same or its authorized dealers.

B. Plastering Contractor:

1. Shall specialize in cement plasterwork with documented experience.
2. Shall provide proof of current contractor's license and bond where required.

C. On-Site Mock-Ups: Produced upon request.

1. Prior to commencement of work, provide a mock-up for approval.
2. Mock-up suitable to represent the products to be installed for each color and texture con- structed using the same tools and techniques to be utilized on the project.
3. Retain approved mock-up at job site throughout the application process.
4. Where acceptable to the Architect, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver all materials to the construction site in their original, unopened packaging with labels intact.

B. Inspection: Inspect the materials upon delivery to assure that specified products have been re- ceived. Report defects or discrepancies to the responsible party according to the construction documents; do not use reported material for application.

C. Storage: Store all products per manufacturer's recommendations. Generally, store materials in a cool, dry location; away from direct contact with the ground and/or concrete; out of direct sunlight; and protect from weather and other damage.

1.8 PROJECT CONDITIONS

A. Environmental Requirements: Follow product manufacturer's recommendations for environmental conditions and surface preparation. Specifications written for Basis of Design. Substitutions will be considered under the provisions of Section 01 33 00, "Submittal Procedures".

B. Substrates: Prior to installation, inspect the wall for surface contamination or other defects that may adversely affect the performance of the materials, and shall be free of residual moisture

Substrates: Prior to installation, inspect the wall for surface contamination or other defects that may adversely affect the performance of the materials, and shall be free of

residual moisture. Do not apply the portland cement plaster to substrates whose temperature are less than 40 degrees F (4 C) or contain frost or ice.

All wood based products covered shall be dry and have a moisture content below 19% . DO NOT COVER WET FRAMING.

C. Inclement Weather: Protect applied material from inclement weather until dry.

1.9 SEQUENCING AND SCHEDULING

A. Staffing: Provide sufficient manpower to ensure continuous operation, free of cold joints, scaffolding lines, variations in texture, etc.

1.10 WARRANTY

A. Warranty Length: Eighteen (18) years commencing at the time of substantial completion.

PART 2 - PRODUCTS

1.1 MANUFACTURERS

A. Acceptable Manufacturers: : Stucco Manufacturers Association: Must be from the current list on SMA website under appropriate category. – www.stuccomanufacturersassoc.com

1.2 SCRATCH AND BROWN COAT (BASECOAT)

A. Cement: [A portland cement complying with ASTM C150.]

B. Sand:

1. Field mixes shall comply with ASTM C-926 and must have sand that is clean and free from deleterious amounts of loam, clay, silt, soluble salts and organic matter. Sampling and testing shall comply with ASTM C144 or C897.
2. An “engineered performance mix” by an SMA manufacturer is acceptable with appropriate approvals (ICC ES, IAPMO or Interek report) .

C. Water: Clean and potable without foreign matter.

1.3 WATER-RESISTIVE BARRIER

A. Over Wood-based Sheathing: (one of the following based on existing conditions):

1. Two layers of D kraft building paper , minimum 30 minute, complying with UBC Standard 14-1.
2. Two layers of asphalt-saturated felt complying with ASTM D226 Type I
3. Double layer of equivalent material recognized in a current evaluation report as complying with the ICC-ES Acceptance Criteria for Water-resistive Barriers (AC38).

1.4 LATH

1. Woven-Wire Lath: Nominal No. 17 gauge (0.058 inch), 1.5-inch opening, galvanized steel complying with ASTM C1032.

1.5 ACCESSORIES

A. Caulking: Acrylic latex complying with ASTM C834, Polyurethane, polyurethane modified, polysulfide, or silyl-terminated polyether elastomeric sealant complying with ASTM C920.

B. Fasteners: Nails, staples, or screws used to rigidly secure lath and associated accessories shall be corrosion-resistant and meet the minimum requirements of ICC-ES ESR-1194.

C. Zinc and Zinc-Coated (Galvanized) Accessories: The following accessories shall be fabricated from zinc-coated (galvanized) steel.

1. Corner Aid: Minimum 26-gauge thick; expanded flanges shaped to permit complete em- bedding in plaster; minimum 2 in. wide; Square-edge style; use unless otherwise indicated.

2. Strip Mesh: Metal Lath, 3.4 lb./yd^2 expanded metal; 6 in. wide x 18 in. long.

3. Casing Bead: Minimum 26-gauge thick; thickness governed by plaster thickness; maxi- mum possible lengths; expanded metal flanges, with square edges.

4. Drip Screed: Minimum 26-gauge thick, depth governed by plaster thickness, minimum 3- 1/2 in. high flange, maximum possible lengths.

5. Control and Expansion Joints: Depth to conform to plaster thickness; use maximum practi- cal lengths.

6. Control Joints: One-piece-type, folded pair of unperforated screeds in double Vconfigura- tion; removable protective tape on plaster face of control joint.

7. Expansion Joints: Two-piece-type formed to produce a slip-joint. CRACK ISOLATION SYSTEM Foam Base Coat and Adhesive: “StyroGlue DryBond” manufactured by Cement plaster Products International, Inc., or equal.

2 Mesh: Alkali resistant, 4.5 oz., woven glass fiber fabrics specially manufactured by Cement plaster Products International, Inc.

3.3 FINISHES

A. Portland Cement based blended finish.

B. Color and Texture to match existing wall

3.1 INSTALLING LATH

A. General: The lath must be applied tightly over sheathing and fastened through the board and water-resistive barrier to the studs. When end laps occur between sup-

ports, lace or wire tie the ends of the sheets with 0.0475-inch (1.2 mm) galvanized annealed steel wire.

3.2 INSTALLING BASE COAT

A. Application: The exterior cementitious coating is applied by hand-troweling in one coat, to a minimum 3/8-inch (9.5 mm) thickness, unless noted otherwise. Nominal thickness around penetrations is 3/8-inch (9.5 mm), backed by framing or blocking. The lath must be embedded in the minimum coating thickness and therefore cannot be exposed.

B. Leveling Coat: Over wire lath shall be a maximum of 1/2- inch (13 mm) thick.

C. Moist Curing: Provide sufficient moisture by fog or moist curing to permit proper hydration of the cementitious materials. The length of time and most effective procedure for curing will de- pend on climatic and job conditions.

3.3 INSTALLING FINISH COAT

A. General: Apply per manufacturer's product data sheet.

B. Verification: Verify the desired texture match the approved sample and/or mock-up prior to installation.

3.4 CLEANING

A. Cleaning: Remove any and all materials used, overspray from adjacent surfaces, and all protective masking.

3.5 PROTECTION

A. Protection: Protect applied material from inclement weather until dry and prevent it from freezing for a minimum of 24-hours after set and/or until dry. Refer to manufacturer's product data sheet for additional requirements.

END OF SECTION 09 24 00

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Gypsum wallboard.
2. Gypsum board, Type X.
3. Interior trim.
4. Joint treatment materials.

B. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work.

C. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

D. Samples for Initial Selection: For each type of trim accessory indicated.

E. Samples for Verification: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.3 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each type of gypsum panel and joint finishing material from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated in accordance with ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated in accordance with ASTM E90 and classified in accordance with ASTM E413 by an independent testing agency.

2.3 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.4 INTERIOR GYPSUM BOARD

A. Gypsum Wallboard: ASTM C1396/C1396M.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Georgia-Pacific Gypsum LLC
   b. Gold Bond Building Products, LLC provided by National Gypsum Company
   c. PABCO Gypsum
   d. USG Corporation

2. Thickness: 5/8 inch.
3. Long Edges: Tapered.

B. Gypsum Board, Type X: ASTM C1396/C1396M.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Georgia-Pacific Gypsum LLC
   b. Gold Bond Building Products, LLC provided by National Gypsum Company
   c. PABCO Gypsum
   d. USG Corporation

2. Thickness: 5/8 inch.
3. Long Edges: Tapered.

C. Abuse-Resistance Gypsum Board: Equal to USG, Sheetrock® Brand, VHI Abuse-Resistant FireCode Core (Type X) per ASTM C36.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

D. Water-Resistant Gypsum Backing Board: ASTM C1396/C1396M, with manufacturer's standard edges.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Georgia-Pacific Gypsum LLC
   b. Gold Bond Building Products, LLC provided by National Gypsum Company
   c. USG Corporation

2. Core: 5/8 inch, Type X.

2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, or paper-faced galvanized-steel sheet.

2. Shapes:

a. Impact Resistant Cornerbead.
b. Bullnose bead.
c. LC-Bead: J-shaped; exposed long flange receives joint compound.
d. L-Bead: L-shaped; exposed long flange receives joint compound.
e. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

A. Comply with ASTM C840.

B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

D. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

E. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

B. Single-Layer Application:
   1. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

      a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

2. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLATION OF TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.
2. LC-Bead: Use at exposed panel edges.
3. L-Bead: Use where indicated on Drawings.

3.5 FINISHING OF GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Gypsum Board Finish Levels: Finish panels to levels indicated below and in accordance with ASTM C840:

1. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.6 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 90 00 - 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.

1.2 SUMMARY

A. This Section includes the following:
   1. Surface Preparation.
   2. Field application of paints, stains, varnishes, and other coatings (PTG, PTS).
   3. Schedules and Interior Elevations on the Contract Documents for finished surfaces.

B. Related Sections:
   1. Finish Schedule on the Contract Documents**.**

1.3 SUBMITTALS

1. Product data - Submit product data sheets for each product.
2. Samples:
   a. Submit three painted samples (brush outs), illustrating selected colors and textures for each color and systems selected with specified coats cascaded.
   b. Submit on suitable backing, 8x10 inch size.

1.4 QUALITY ASSURANCE

A. Reference Standards:
   1. Title 19 CCR, Public Safety, State Fire Marshall Regulations
   2. Title 24 CCR, Part 1 - 2022 California Building Standards Administrative Code
   3. Title 24 CCR, Part 2 - 2022 California Building Code, VOL. 1&2 (CBC) (2021 IBC, as Amended by CA
   4. Title 24 CCR, Part 3 - 2022 California Electrical Code (CEC) (2020 NEC, as Amended by CA)
   5. Title 24 CCR, Part 4 - 2022 California Mechanical Code (CMC) (2021 IAPMO UMC, as Amended by CA)

6. Title 24 CCR, Part 5 - 2022 California Plumbing Code (CPC) (2021 IAPMO UPC, as Amended by CA)
7. Title 24 CCR, Part 9 - 2022 California Fire Code (CFC) (2021 IFC, as Amended by CA
8. Title 24 CCR, Part 10 - 2022 California Existing Building Code
9. Title 24 CCR, Part 12 - 2022 California Reference Standards (Partial List)
10. 2010 ADA Standards for Accessible Design
11. Americans with Disabilities Act (ADA), Title II or Title III.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

C. Environment Requirements:
1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be stored and applied.
2. Stucco: Provide a PH test of the stucco that shows compliance with PH requirements of the paint manufacturer. Do not apply paint to stucco at PH levels over 10 or the max amount recommended by the paint manufacturer, whichever is less.
3. Do not paint when there is a threat of rain within 24 hours or when surface or air temperatures are at or below 40 degrees.
4. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC Content limit for coatings that do not meet the definitions for specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Non- flat or non-flat high gloss coating based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board, suggested Control Measure, and the corresponding Flat, Non-flat or Non-flat-High gloss VOC limit

on Table 5.504.4.3 shall apply. *"TABLE 5.504.4.3-VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS"*

5. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on the use of certain toxic compounds and ozone depleting substances. In Sections 94522(c)(2) and (d)(2) of the California Code of Regulations, Title 17, commencing with Section 94520 and in areas under the jurisdiction of the Bay Area Air Quality Management District, (additionally) comply with the percent VOC by weight of product limits of Regulation 8 Rule 49. *"TABLE 5.504.4.3-VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS"*

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace paint that fails in materials or workmanship within specified warranty period.
   1. Warranty Period: 1 year.

B. Installer Warranty: 1 year.

1.8 EXTRA STOCK

A. Provide following with District's permission:
   1. Minimum 2 gallons of each product and each color in an original unopened or new 1 gallon cans.
      a. Color spot each lid.
      b. Identify with formula, location, product and date on the lid.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Paints:
   1. Dunn-Edwards Corp. (Basis of Design).
   2. Sherwin Williams
   3. Or equal (Reference substitution requirements in Section 01 60 00)

B. Ready mixed, except field-catalyzed coatings.

C. Prepare pigments:
   1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogenous coating.
   2. For good flow and brushing properties.
   3. Capable of drying or curing free of streaks or sags.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application. Do not proceed unless substrate is suitable.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Plaster and Gypsum Wallboard: 12 percent.

3.2 PREPARATION OF SURFACE

A. General:
   1. Clean all exterior walls and surfaces of loose and scaly paint, dirt, dust, chalk, and other foreign matter by water-blasting using care not to damage substrate followed by hand scraping, sanding or wire brushing after surfaces are dry. Mildew must be treated with household bleach solution and rinsed thoroughly.
   2. Patch, caulk, set protruding nails and repair all surfaces and cracks where necessary with suitable patching materials and smooth off to match adjacent surfaces.
   3. Sand Glossy surfaces to dull surface and remove residue.
   4. Remove mildew from affected surfaces with a solution of Tri-Sodium Phosphate and bleach. Rinse with clean water and allow to dry completely.
   5. Existing surfaces to be recoated shall be thoroughly cleaned and de-glossed by sanding or other means prior to priming and painting. Patched and bare areas shall be spot primed with the same primer as specified for new work.

6. Rusty metal: Scrape, sand or wire wheel, feathering edges to sound coating. Dust surfaces. Topcoat.
7. Remove soil and body oils completely from surfaces, including handrails, door edges and posts. Treat with Liquid Sandpaper or Dull-N-Bond.
8. Remove hardware, accessories, plates, fixtures and similar items not to be finished. Reinstall at completion.
9. Paint edges of sink cut-outs.

B. Galvanized Surfaces: Remove all oils and contamination from galvanized surfaces scheduled to be painted by washing with a compliant solvent wash.

C. Ferrous Metal: Remove grease, rust, scale, dirt and dust from ferrous metal surfaces. Primer coat shall be applied not less than 30 minutes, nor more than 3 hours after preparation of surface.

D. Primed Metal: Sand and scrape shop primed metal to remove loose primer and rust. Touch-up bare, abraded and damaged areas with metal primer. Feather edges to make touch-up patches inconspicuous.

E. Plaster Surfaces:
1. Plaster surfaces shall be dry and free from efflorescence, encrustations and foreign matter. Fill cracks, holes and imperfections, smoothing repairs to match adjacent texture. Allow repairs to fully cure before priming.
2. Prime plaster surfaces with specified primer. Caulk all cracks.

F. Gypsum Board: Gypsum board shall be dusted clean and free from encrustations and other foreign matter.

G. Preparation of other surfaces shall be performed following specific recommendations of the coating manufacturer.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved

E. Sand wood surfaces lightly between coats to achieve required finish.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust particles just prior to applying next coat.

G. Stipple all edges and corners to conceal brush marks.

H. Doors: Paint entire door unless otherwise noted, including door top and bottom edge surfaces.

I. Paint entire trim element. Painting of faces only is unacceptable. Trim surfaces must be wrapped with the trim color and not "faced off" or "Hollywooded".

J. Tinting: Tint each primer a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint primer to match the color of the finish coat, but provide sufficient differences in shade of primer to distinguish each separate coat.

3.4 PROTECTION

K. Protect work of other trades and items not intended to receive paint. Install "wet paint" signs to protect newly painted surfaces.

3.5 CLEANING

L. Protection - Carefully protect areas where work is in progress from damage.
   1. Provide and spread clean drop cloths when and where required to provide the necessary protection.
   2. Immediately clean-up all accidental spatter, spillage, misplaced paint and restore the affected surface to its original condition.

M. Clean-up:
   1. At completion of work, remove all materials, supplies, debris and rubbish and leave each area in a clean, acceptable condition.

   2. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.5 SURFACES TO BE FINISHED

N. Paint all new work and areas affected by new work, unless noted otherwise.

O. Do not paint or finish the following items:
1. Items fully factory-finished unless specifically noted.
2. Fire rating labels, equipment serial number and capacity labels.

PAINT SYSTEMS – EXTERIOR

P. Paint New Plaster/Stucco- Low Sheen (Satin) Finish. 3 coat:
1. 1st Coat: D-E Eff-Stop Premium Concrete & Masonry Primer Sealer, ESPR00 (5.5 mils wet, 2 mils dry).
2. 2nd Coat: D-E Spartashield40 (#SSHL40) 100% Acrylic Low sheen (4 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: D-E Spartashield40 *(#SSHL40)* 100% Acrylic Low sheen (4 mils wet, 1.5 mils dry per coat)

Q. Paint New Plaster/Stucco
1. 1st Coat: D-E Eff-Stop Premium (ESPR00) Concrete & Masonry Primer Sealer, (5.5 mils wet, 2 mils dry).
2. 2nd Coat: D-E Spartashield60 (SSHL60) 100% Acrylic Gloss (4 mils wet, 1.5 mils dry per coat)
3. 3rd Coat: D-E Spartashield60 (SSHL60) 100% Acrylic Gloss (4 mils wet, 1.5 mils dry per coat)

R. Paint Ferrous Metals Semi-Gloss, Acrylic, 3 coat:
1. 1st Coat: D-E Enduraprime Metal Primer, ENPR00, (5 mils wet, 2.0 mils dry).. *(If pre Primed: Show compatibility of primer and this coat can be deleted.)*
2. 2nd Coat: D-E Enduracoat50 Acrylic Coating Semi-Gloss, ENPR00 (3.7 mils wet, 1.5 mils dry per coat).
3. 3rd Coat: D-E Enduracoat, Acrylic Coating Semi-Gloss, ENPR00 (3.7 mils wet, 1.5 mils dry per coat).

S. Paint New Galvanized Metals, Semi-Gloss, Acrylic, Latex 2 coat:
1. 1st Coat: Jasco Metal Etch. (Follow mfrs recommendations.)
2. 2nd Coat: D-E Enduracoat50 Acrylic Coating Semi-Gloss, ENCT50 (3.7 mils wet, 1.5 mils dry per coat).
3. 3rd Coat: D-E Enduracoat50 Acrylic Coating Semi-Gloss, (3.7 mils wet, 1.5 mils dry per coat).

PAINT SYSTEMS -INTERIOR

T. Paint New Gypsum Board (Public Areas)Semi-Gloss Finish - Latex, 3 coat:
1. 1st Coat: D-E Vinylastic Plus, Interior Wall Sealer, VNPL00, (7.2 mils wet, 2.0mils dry)
2. 2nd Coat: D-E Enduracat, Interior Semi-Gloss Pre-Catalyzed WB Epoxy ,

ENPX50 (4 mils wet, 1.5 mils dry per coat).

3. 3rd Coat: D-E Enduracat Interior Semi-Gloss Pre-Catalyzed WB Epoxy, ENPX50, (4 mils wet, 1.5 mils dry per coat).

END OF SECTION 09 90 00

SECTION 32 31 19 - DECORATIVE METAL FENCES AND GATES

PART 1 - GENERAL

1.01 PRINCIPAL WORK IN THIS SECTION

A. The requirements of the **Owner's** General and Supplementary Conditions, and Division 0 and Division 1 general requirements apply to the work of this Section.
B. Coordinate the work of this Section with related trades.
C. Verify applicable extents of work and dimensions at the jobsite.
D. Verify applicable dimensions at the jobsite.
E. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to complete the work, included but not limited to:
   1. Ornamental Picket Fencing, posts/footings, roller guides, guide wheels and accessories
   2. Ornamental Swinging Gates
      a. Manual
   3. Gate Hardware

1.02 REFERENCE STANDARDS

A. 2022 California Code of Regulations (CCR), Title 24, California Building Standards Commission (CBSC) www.bsc.ca.gov current edition at time of permit issuance.
B. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines, current version.
C. Title 24, Chapter 11 – California Green Building Standards Code
   1. Non-residential new construction
      a. All occupancy types
D. Aluminum Association (AA)
E. American Architectural Manufacturers Association (AAMA)
F. American Concrete Institute (ACI)
G. American Institute of Steel Construction (AISC)
H. American Iron and Steel Institute (AISI)
I. American National Standards Institute (ANSI)
J. American Society For Testing and Materials (ASTM)
   1. ASTM A446 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-
   Dip Process, Structural Physical Quality
   2. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel
   Structural Tubing in Rounds and Shapes
   3. ASTM A513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing

4. ASTM A525 - General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
5. ASTM B86-83Z 33521 - Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings
6. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

K. American Welding Society (AWS)
L. Steel Structures Painting Council (SSPC)

1.03 PERFORMANCE, TESTING AND INSPECTION

A. **General:**
1. Comply with manufacturer's standards.
2. Comply with Building Code.
3. Job site inspections shall be done as herein specified and as listed in drawings.
4. Testing shall be done as herein specified and as listed in drawings.
5. Refer to Division 1 for additional requirements for DSA projects

B. **Standards:**

Item	**Name of Test**	**Performance**	**Testing Std.**
Cast in Place Concrete	Compressive Strength	3000 psi @28 days	ASTM C94
Pickets	Yield Strength	45,000 psi	ASTM A787
Rails	Yield Strength	50,000 psi	ASTM A653 ASTM A607
Refer to drawings and as herein specified			

C. **Sustainability:**
1. Refer to Division 1 sustainability requirements.
1. Refer to product criteria identified herein.

1.04 SUBMITTALS

A. Refer to Division 1 for substitution, deviation and/or submittal procedures.
B. Submit O&M (Operation and Maintenance) manuals in accordance with Division 1 requirements and as herein specified.
C. Refer to Division 1 for sustainability requirements
D. Submit Manufacturers data and shop drawings.
1. Submit manufacture's technical data, and installation instructions and complete detailing for all conditions for constructing gates, fencing, accessories, post foundations for each swing gate and fence as specified and indicated on the Drawings.
2. Manufacturer's catalog cut sheets indicating material compliance and specified colors.

E. Samples: Color selection for Polymer finishes & metals color samples of each color for all gates, fencing, finials, caps & accessories.
F. Gate Hardware Schedule and herein specified.
G. Provide wet stamped and signed calculations for fence, gates and posts by a Structural Engineer licensed in the State of California.

1.05 QUALITY ASSURANCE

A. Refer to Division 1 for quality control requirements.
B. Contractor / Installer shall have been in business for Five (5) years providing/finishing similar size projects and complexity.
C. Products shall be provided by a qualified manufacturer having a minimum of (5) years experience manufacturing Ornamental Picket fencing & Ornamental Gates.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product delivery, storage and handling requirements.
B. Deliver all parts ready for erection; store in close proximity to final locations.
   1. Coordinate storage of materials with other trades.
   2. Store materials safely and securely, protected from theft, weather, vandalism or other damage. Prevent damage to or staining of site surfaces or other materials.

1.07 JOB CONDITIONS

A. Field-verify that all components, backing, etc. by others are installed correctly to proceed with installation of products as herein specified.

1.08 PROTECTION

A. Protect finish surfaces at all times from surfaces and material adjacent to them.
B. Finish work defaced with other materials on surface shall be replaced.
C. Protect work under this section from damage by other trades.

1.09 GUARANTEE / WARRANTY

A. Refer to Division 1 for closeout submittal procedures.
B. Furnish **one (1)** year written warranty signed by manufacturer and installer agreeing to repair and/or replace work which has failed as a result of defects in materials or workmanship.
   1. Upon notification of **Owner** within the warranty period, such defects shall be repaired and replaced at no cost to the **Owner**.

1.10 RELATED WORK/SECTIONS

A. Related work includes, but is not limited to, the following:
   1. Finish Grading
   2. Landscaping
   3. Flatwork
   4. Asphalt Paving

5. Concrete Paving
6. Posts cast-in-place in Retaining walls, seat walls, etc.
7. Hinges cast-in-place in Retaining walls, pilasters, etc.

B. Related Sections include, but are not limited to, the following:
1. Division 1
2. Section 03 30 00 - Cast In Place Concrete

1.11 OPERATION AND MAINTENANCE DATA

A. Submit as part of project closeout:
1. Complete instructions regarding maintenance of the equipment, materials, and finishes, etc.
2. Refer to Division 1 for closeout submittal procedures.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Single source responsibility, specified items shall be from one manufacturer.
B. Acceptable Fabricators and Manufacturers shall be one of the following:
1. Fencing:
a. AMERISTAR, Tulsa, OK, 918.835-0898, www.ameristarfence.com
1. Basis of Design
b. Monumental Iron Works, Baltimore, MD (410) 633 – 6500, (410) 633 – 6506 fax / Master Halco, www.mhfence.com
c. High Sierra Fabricators
d. Grating Pacific, 800.942-4041 www.gratingpacific.com (Orsogril fencing)
e. DELGARD Group LLC, www.delgard.com
2. Hardware:
a. Architectural Iron Designs, Inc., www.archirondesign.com
b. D & D Technologies, www.ddtechglobal.net
3. Reviewed Equivalent by **Architect**.
a. Substitutions and deviations shall require **Architect's** approval and shall be given in letterform.
b. Refer to Division 1 for substitution, deviation and/or submittal procedures.
c. Proposed alternate products must be equal in terms of chemical composition, color, finish, configuration, performance standards, etc.

C. All products and materials indicated shall be installed according to current listed specification requirements and manufacturers specifications/recommendations.
D. Refer to drawings, details, and other related specification section whether listed or not.
E. Details shall set basic requirements for size and configuration of systems.

2.02 MATERIAL

A. General Fence:
1. Mfgr: Ameristar

2. Model: Montage Series - Style as indicated on drawings
3. Finish
   a. Pre-finish: Hot-dipped galvanized to provide maximum corrosion resistance,
      pre-treat, clean and prepare galvanized surface to assure complete adhesion of finish coat.
   b. Material: Polyester Powder coating, polyester resin
   c. Thickness: 2.5 mil thickness by electrostatic spray process

4. Installation:
   a. After components have been galvanized (inside and out) toprovide maximum corrosion resistance, clean and pretreat with phosphate to form amorphous structure on galvanized surface for superior powder coating adhesion.
   b. Give phosphate coats surface a thorough water rinse to prepare surface for seal rinse.
   c. Seal rinse with non-chromated solution to improve corrosion resistance and adhesion of finish coat.
   d. Bake metal dry, prior to application of powder coating. Apply 2.5 mil (0.0635 mm) thickness of polyester resin based powder coating by electrostatic spray process. Bake finish for 20 minutes (1.2 Ks) at 450ºF. (232ºC.) metal temperature.
   e. Color: Black

5. Material:
   a. Rails
      1. Shape: "U" channel
      2. Fabrication: Formed from hot-rolled structural steel
      3. Material: 11 ga. wall thickness
      4. Size: 1-1/2" deep x 1-3/8" wide
      5. Assembly: Punch rails to receive pickets, and weld inside gate frame
      6. Coating: G90 Zinc
      7. Spacing:
         a. 3-7/8" clear at top of fence
         b. 6" clear of grade at bottom of fence
   b. Pickets
      1. Shape: Square Tubes
      2. Fabrication: Hot-dipped galvanized steel
      3. Material: Gage to match Fencing material
      4. Size: 1" sq.
      5. Layout: Spacing to match fencing
      6. Assembly: Attach pickets to "U" rails by ¼" industrial drive rivets, size #4
      7. Coating: G90 Zinc

8. Spacing:
   a. 3-15/16″ face to face

6. Posts
   a. Shape: Square
   b. Fabrication: Hot-rolled structural quality steel, ASTM A500
   c. Material: Tubular material, 12 ga. Hot-dipped galvanized G90 – ASTM A525
   d. Tensile Strength: 45,000 psi
   e. Yield Strength: 60,000 psi
   f. Size: 3″ square
   g. Spacing: 8′-0″ o.c. maximum
   h. Weight: 4.286 lb./ft.

B. Posts:
1. Line Posts (Fence)
   a. Size O.D.: 3″ sq. x 12 ga. 7 to 9″ exposed height

      1. Square tube posts shall be galvanized tubular steel in conformance with ASTM A787.
      2. Weights:
         a. 3″ sq. = 4.286 lb/ft
         b. 4″ sq. = 5.770 lb/ft
         c. Cap
            1. Flat

2. End Posts (Fence)
   a. Size: 4″sq. x 12 ga.
      1. Square tube posts shall be galvanized tubular steel in conformance with ASTM A787.
      2. Weight: 5.770 lb/ft.
      3. Cap:
         a. Flat

3. Corner Posts (Fence)
   a. Size: 4″sq. x 12 ga.
      1. Square tube posts shall be galvanized tubular steel in conformance with ASTM A787.
      2. Weight: 5.770 lb/ft.
      3. Cap:
         a. Flat

4. Gate and Guide Posts:
   a. Size: 4″ sq. x 12 ga.

1. Square tube posts shall be galvanized tubular steel in conformance with ASTM A787.
2. Weight: 5.770 lb/ft.
3. Cap:
   a. Flat
4. Guide Roller Assembly: Yes

5. Latch Posts:
   a. Size: 4" sq. x 12 ga.
      1. Square tube posts shall be galvanized tubular steel in conformance with ASTM A787.
      2. Weight: 5.770 lb/ft.
      3. Cap:
         a. Flat
      4. Keeper Assembly: Yes
      5. Guide Roller Assembly: Yes

C. Swing Gates
   1. Gate Frames:
      a. Pickets: See "General Fence" information.
      b. Rails: See "General Fence" information.
      c. Upright Post-Hinge and strike side posts: 2" sq x 13 ga.
      d. Assembly: Welded using stainless steel welded to form rigid one piece unit
   2. Bracing
      a. Provide & install diagonal adjustable length truss rods and gates to prevent sag.
      b. Finish assembly to math gates.
   3. Hardware
      a. General: Stainless steel
      b. Man gates:
         1. Comply with Building Code & ADA
            a. Panic latching device
            b. 10" tall kick plate at bottom of gate with any cavity created to be capped per 11B-404.2.10
            c. Lever latching device
   4. Hinges
      a. General:
         1. Design to structurally support gate leaf and allow opening and closing without binding.
         2. Non-lift-off type hinge design that shall permit gate to swing 180 degrees.
      b. Square post hinge at posts
      c. SELF-CLOSING, MODEL NO: M180-SL (x2).

   5. Latch
      a. General

1. Design with capability of retaining gate in closed position.

b. Single Man gate
1. Comply with Building Code & ADA
2. Panic hardware and gatepost latch at exit paths.
3. Locking mechanism and closer.
4. Padlock at double gates
5. Provide locking device and padlock eyes as an integral part of latch, requiring one padlock for locking both gate leaves.

c. Double gates:
1. Comply with Building Code & ADA
2. Panic hardware and latch at inactive leaf at exit paths.
3. Padlock at double gates
4. Provide drop rod to hold inactive leaf only
5. Provide gate stop pipe to engage center drop rod
6. Provide locking device and padlock eyes as an integral part of latch, requiring one padlock for locking both gate leaves.

6. Gate Holdback / Keeper
a. Provide at all gates.
b. Design/assembly shall consist of mechanical device for securing free end of gate when in full open position.

7. Drop bar
a. Design for use at closed & fully open positions for inactive leafs.

D. Fencing

1. Pickets: See "General Fence" heading.
a. Assembly: Attach each picket to each rail with ¼" industrial drive rivets, #4 facing out.

2. Rails: See "General Fence" heading.
a. Fabrication: Formed from hot-rolled structural steel having no pockets or shelves to hold water or moisture. ASTM 446
b. Assembly: Punch rails to receive pickets and rivets and attach rails to rail brackets with 2 each, ¼" industrial drive rivets, size #4 facing out.

3. Posts: See "General Fence" heading.
a. Shape: Square
b. Fabrication: Hot-rolled structural quality steel, ASTM A500
c. Material: Tubular material, 12 ga. Hot-dipped galvanized G90 – ASTM A525
d. Size: 3" square
e. Spacing: 8'-0" o.c.

f. Weight: 4.286 lb./ft.
   1. Post Tops:
      a. Flat

4. Accessories
   a. Assemble panels with ornamental accessories attached using industrial drive rivets to prevent removal or vandalism.

2.03 SCHEDULE

A. Swinging Gates

1. DOUBLE GATE
   a. Type: Double Gate
   b. Name: Match fence
   c. Style: Match fence
   d. Height: Per schedule on drawings
   e. Opening (nominal): Per schedule on drawings
   f. Post top: Flat
   g. Ring Option: No.
   h. Finial & Picket Top: Flat

2. SINGLE GATE
   a. Type: Prehung
      1. Schedule:
         a. Mortise Hardware /Operation - Hydraulic Gate Closer
            1. Drawing: DWG 6-11201
            2. Name: Match fence
            3. Style: Match fence
            4. Height: Refer to documents
            5. Opening (nominal): Refer to documents
            6. Post top: Flat
            7. Ring Option: No.
            8. Finial & Picket Top: Flat
         b. Panic exit device/Operation - Hydraulic Gate Closer
            1. Drawing: DWG 6-11203
            2. Name: Match fence
            3. Style: Match fence
            4. Height: Refer to documents
            5. Opening (nominal): Refer to documents
            6. Post top: Flat
            7. Ring Option: No.
            8. Finial & Picket Top: Flat

2.04 MATERIALS - FENCE ACCESSORIES

A. Rail attachment Brackets:
   1. Material: Die cast zinc (ZAMAK #3 alloy) per ASTM B86-83Z 33521.
   2. Design: Ball and socket capable of 30 degree swivel (up/down, left/right) with bracket to fully encapsulate rail end for complete security that is aesthetically pleasing.

B. Industrial Drive Rivets:
   1. Sufficient length to attach items in a secure non-rattling position
   2. Rivet to have min. of 1100 LB holding power and shear strength of 1500 lbs.
   3. Install facing out.

C. Ornamental Picket Fence Accessories:
   1. Provide indicated items required to complete fence system
   2. Galvanize each ferrous metal item in accordance with ASTM B695sh to hatch framing.

D. Rings:
   1. Material: Cast Aluminum
   2. Attachment: Attach ring to top rail by inserting mounting blocks into top rail and riveting through side of rail using ¼" industrial drive rivets. Hold bottom of ring in place by dowel that protrudes from ring through predrilled hole in bottom rail.

2.05 MATERIALS - POST SETTING

A. All posts shall be set in concrete footings.
B. Footing design: Comply with Section 03 30 00 – Cast in Place Concrete
   ASTM C-94

2.06 MATERIALS – DECORATIVE PANELS

A. Artisan Panels, Inc. 4900 East Hunter Avenue, Anaheim, CA 92807
   1. Material: 1/4" thick steel, painted to match fence
   2. Pattern: as indicated on drawings
   3. Attachment: side mounted to fence post or gate frame with welded dog-ears.

PART 3 - EXECUTION

3.01 INSPECTION / EXAMINATION

A. Verification of Conditions:
   1. Examine areas and conditions under which work is to be performed.
   2. Identify conditions detrimental to proper or timely completion of work and coordinate with **General Contractor** to rectify.

B. Verify areas to receive fencing & gates are completed to final grades and elevations
C. Ensure property lines and legal boundaries of work are clearly established.
D. Prior to all work of this Section, carefully inspect and verify that the installed work of all other trades is complete to the point where this work may properly commence.

3.02 COORDINATION

A. Refer to Division 1 for project coordination requirements.
B. **General Contractor** shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

3.03 PREPARATION

A. Prepare work, substrates, etc. in accordance with manufacturer's recommendations
B. Take all necessary measurements in the field to ensure proper dimensions for fence layout and construction.
C. Coordinate work under this Section with other trades whose work adjoins, combines, or aligns with same.

3.04 POST SPACING AND SETTING

A. General:
    1. Install fencing and gates in accordance with manufacturer's recommendations.
    2. Posts shall be equally spaced in line of fence with uniform spacing at 7'-8-3/4" face to face".
        a. All posts shall be set in concrete footings.
        b. Top of concrete footings:
            1. shall be set 2" above finish grade and slope away from post to level-out at finish grade.
            2. shall be set below paving surface
            3. as indicated on drawings
        c. Drill holes in firm, undisturbed or compacted soil.
            1. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads.
        d. Place concrete around posts and vibrate or tamp for consolidation.
            1. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
        e. Coat all posts in contact with concrete with a VOC compliant lead primate paint.
        f. Set posts within 4" of depth of footing.
        g. Concrete mix design shall be in accordance with Section 03 30 00 - Cast in Place Concrete.
B. Corner, End and Pull post footings:
    1. Footing Size: as indicated on drawings
C. Gate and Latch posts:
    1. Footing size:
        a. as indicated on drawings
D. Line Posts
    1. Footing Size: as indicated on drawings
E. Setting:
    1. Posts: Install Corner posts at any of the following conditions:
        a. Change in direction of 15 degrees or more.

b. Change in grade of 5% or more.
c. Beginning and end of curved sections.
d. Where indicated on Documents.

2. Install terminal posts at ends.
3. Install gateposts at both sides of gates.
4. Install latch posts at sliding gates.
5. Install end posts 4" maximum clearance distance from exterior building walls.

3.05 INSTALLATION

A. General:
1. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.
2. Do not begin installation before final grading is completed, unless otherwise permitted.
3. Insure property lines and legal boundaries of work are clearly established.
4. Prior to all work of this Section, carefully inspect and verify that the installed work of all other trades is complete to the point where this work may properly commence.
5. Verify that specified items may be installed in accordance with the approved design.
6. In the event of discrepancy, Contractor shall immediately notify the **Owner** in writing. Do not proceed in until unsatisfactory conditions have been corrected.
7. Excavation: Drill or hand-excavate (using posthole digger) holes for posts to diameters and spacing indicated, in firm, undisturbed or compacted soil.
8. Installation to conform with ASTM F-567
9. Provide heights as indicated on Contract Documents.

B. Gates
1. Framing installation
a. Install gate posts in accordance with manufacturer's instructions.
b. Concrete set gate posts.
1. Gate posts & hardware: Set keepers, stops, sleeves into concrete. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.

2. Gate installation
a. Install gates plumb, level and secure for full opening without interference.
b. Attach hardware by means which will prevent unauthorized removal.
c. Adjust hardware for smooth operation without binding.

C. Fencing
1. Installation
a. Install fence in accordance with manufacturer's instructions.
b. Space posts uniformly at 7'-8-3/4" max. face to face unless otherwise noted.
c. Concrete set gate posts.
1. Gate posts & hardware: Set keepers, stops, sleeves into concrete. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.

d. Surface mount (wall mount) posts with mounting plates where indicated. Fasten with lag bolts and shields.
e. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.
f. Align fence panels between posts. Firmly attach rail brackets to posts with ¼" bolt, washer and lock nut, ensuring panels and posts remain plumb.
g. Install with all appropriate brackets, rivets, etc.

3.06 FIELD QUALITY CONTROL

A. Monitor work to insure installation and assembly are in accordance with applicable standards.

3.07 PROTECTION AND CLEANING

A. Refer to Division 1 for protection and cleaning requirements.
B. Subcontractor will keep the work areas in a clean and safe condition so his rubbish, waste, and debris do not interfere with the work of others.
C. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
   1. Clean adjacent surfaces free of caulking or sealant with mechanical action or solvent as necessary, avoiding damage to other materials.
D. Perform work in accordance with manufacturer's recommendations, as herein specified and in accordance with drawings.
E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the **Architect** and at no cost to the **Owner**.
F. After completion of work in this section, remove all erection equipment and implements of service, and debris.
   1. Leave entire area in a neat, clean, acceptable condition.
G. Provide Guarantee/Warranties and Bonds as required in this specification section and as listed in Division 1 closeout submittal procedures.
H. Provide record drawings in accordance with Division 1 closeout submittal procedures.
I. Close out, on-site inspection will be at the discretion of the **Architect** after he receives the **General Contractor's NOTICE** of "Certificate of Substantial Completion".

END OF SECTION 32 31 19