



PROJECT MANUAL

For

HEARST SAN SIMEON SHM Various ADA Improvements San Luis Obispo County, California

August 2009

VOLUME 1 OF 2

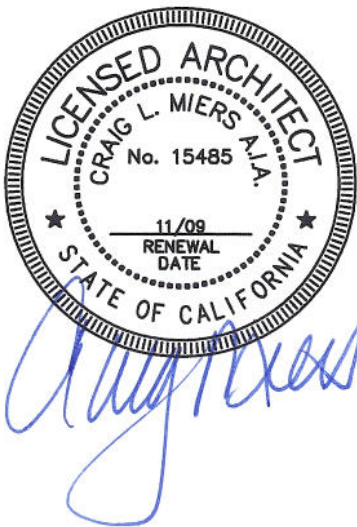


**STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF PARKS AND RECREATION**

**CALIFORNIA DEPARTMENT
OF
PARKS AND RECREATION**

CONTRACT DOCUMENTS

**HEARST SAN SIMEON SHM
Various ADA Improvements
SAN LUIS OBISPO COUNTY**



May 2009

DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION	
Certification #	09-033
SHAWN B. SMITH, CASP-027	
SS Smith	6/18/09
Reviewer	Date

DEPARTMENT OF PARKS AND RECREATION

SMALL BUSINESS NOTICE

Your business may now qualify for "Small Business" Certification with the State of California! On January 1, 1999, the legal definition of "small business" changed, making it possible for more small businesses to qualify for this valuable certification.

Your firm may now be eligible if it meets all of the following:

- Annual receipts averaging \$10 million or less over the previous three years?
(Note: manufacturers do not have to meet this criteria)
- One hundred or fewer employees?
- Is your firm's principal office located in California, and its owners and officers living in California?
- Is it independently owned and operated?

The State of California Department of General Services, Procurement Division, Office of Small Business and DVBE Services (OSDS) offers many services that assist both contracting state agencies and contractors/business owners with a variety of information designed to streamline the state contracting process. For example, certified Small Businesses (SB) and Disabled Veteran Business Enterprises (DVBEs) are now listed at no charge on OSDS' website so state contracting officials can easily contact them to verify certification status and to develop referral lists for use by contractors bidding on state contracts. ***Please note most DVBEs also qualify for "Small Business" certification.***

On the OSDS website, the California State Contracts Register (CSCR) electronically announces contracting opportunities daily. One of many new services available to all businesses, the Subscription Outreach Service (SOS), sends firms notices (fax or e-mail) of California government contracting opportunities that match the services and products they provide. Contractors are able to complete a "profile" of their business, and OSDS forwards contracting opportunities that fit the contractor's specific profile. Please check out this and many other services in greater detail on OSDS' website: <http://www.pd.dgs.ca.gov/smbus>.

The Department of Parks and Recreation (DPR) welcomes all its contractors and suppliers as business partners and thanks them for supporting its mission to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. DPR's mission is further enhanced by the goods and services you provide.

What is the Small Business Preference?

A five (5%) percent preference will be granted to the bidder properly approved as "Small Business" in accordance with Title 2, California Code of Regulations, Section 1896, et seq. A small business firm must have an approved certification form (STD 813) on file with the Department of General Services, Small Business and DVBE Services, 707 Third Street, First Floor - Room 400, West Sacramento, CA 95605, by 5:00 p.m. on the bid opening date.

To assist the Department in a timely evaluation of bids received, any bidder requesting the small business preference is encouraged to submit with the bid a copy of his/her small business certification approval letter from OSDS.

How does the 5% Small Business Preference Work?

The following example shows how the 5% preference computation works, and how it is used to determine a successful bidder.

Bidder	Bid Amount	Bid After Preference	Small Business Status
1	\$30,750	\$30,750	Claims small business status, but <i>is not</i> OSBDS-certified.
2	\$28,975	\$28,975	Does not claim to be small business.
3	\$29,520	\$29,520	Claims small business status, but <i>is not</i> OSBDS-certified.
4	\$29,870	\$28,421	Claims small business status and <i>is</i> OSBDS-certified.

Computation Method

Five percent is applied to the lowest (non-certified small business) responsible bid
([Bidder 2] \$28,975 x .05 = \$1448.75).

The preference amount (\$1,448.75) is subtracted from the certified small business (Bidder 4's) bid amount (\$29,870 - \$1,448.75 = \$28,421.25).

Bidder 4's computed total is \$28,421.25, making them the lowest bidder.

The contract is awarded to Bidder 4 for \$29,870.

Notes: The five percent bid preference **does not apply** when the certified small business is the lowest bidder. Also, the 5% preference is used only for computation purposes to determine the successful bidder and **does not alter the amounts of the actual bids**.

Contact OSDS to find out more:

The State of California
Department of General Services
Office of Small Business and DVBE Services
707 Third Street, First Floor - Room 400
West Sacramento, CA 95605

www.pd.dgs.ca.gov/smbus
Receptionist: (916) 375-4940
24-hour recording (916) 322-5060
FAX: (916) 375-4950

**NOTICE OF
Disabled Veteran Business Enterprise (DVBE)
INCENTIVE PROGRAM
for Invitation For Bids (IFB)**

Your bid may qualify for the DVBE Incentive Program.

What is the DVBE Incentive Program?

The DVBE Incentive Program was established by statute and applies to contracts solely financed by State funds. This program is separate from the DVBE Participation Program. The incentive is designed to encourage bidders to partner with DVBE subcontractors. The incentive may be combined with other incentives and preferences up to the established cap of \$100,000.00. ***The incentive is used only for evaluation purposes to arrive at the successful bidder and does not alter the amounts of the actual bids.***

Who is eligible to receive the incentive?

Any responsive and responsible bidder with an eligible amount of DVBE participation per Table A below.

Who is not eligible for the incentive?

Bidders who do not gain enough DVBE participation per Table A below and bidders who are not responsive and responsible regardless of the amount of DVBE participation.

How does the DVBE Incentive Program Work?

Table A – IFB (aka Low Price Method)

Confirmed DVBE Participation of	DVBE Incentive Amount for IFB
6% or more	5% of lowest responsive and responsible bid
Good Faith Effort (GFE) is required if less than 6 % DVBE participation is achieved	
5% - 5.99%	4% of lowest responsive and responsible bid
4% - 4.99%	3% of lowest responsive and responsible bid
3% - 3.99%	2% of lowest responsive and responsible bid
Less than 3%	N/A

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Computation Method

The DVBE incentive is used only for evaluation purposes to arrive at the successful bidder and does not alter the amounts of the actual bids. A dollar cap of \$100,000.00 is set for all combined incentives and preferences.

For contracts awarded based on the Low Price Method, the incentive amount is equal to a percentage of the **lowest responsive and responsible bid** based on the amount of DVBE participation in the bid being evaluated per Table A above. Example 1 does not include the small business preference; however, the small business preference may be applied and may affect the application of the incentive and the outcome of the ranking.

Example 1 –Low Price Method

Bidder Name	A	B	C
Original Bid Price	\$98,000.00	\$102,100.00	\$100,000.00
DVBE Participation for certified DVBE Prime or Subcontractors	2%	8%	4.5%
5 steps of GFE	No	n/a	Yes
Initial Ranking	Unresponsive	2	1
DVBE Incentive (from Table A)	n/a	5%	3%
Incentive Amount (% times lowest responsive and responsible bid price)	n/a	\$5,000.00 (5% x \$100,000)	\$3,000.00 (3% x \$100,000)
Adjusted Bid Price (bidder's price minus bidder's incentive amount)	n/a	\$97,100.00 (\$102,100-\$5,000)	\$97,000.00 (\$100,000-\$3,000)
Final Rank	Unresponsive	2	1

OFFICE OF SMALL BUSINESS AND DVBE SERVICES

The State of California, Department of General Services, Procurement Division, Office of Small Business and DVBE Services (OSDS) offers many services that assist contractor/business owners with a variety of information designed to streamline the State contracting process. OSDS also certifies DVBE contractors. For more information, please:

Contact OSDS to find out more:

The State of California
Department of General Services
Office of Small Business and DVBE Services
707 Third Street, First Floor – Room 400
West Sacramento, CA 95605

www.pd.dgs.ca.gov/smbus
Receptionist: (916) 375-4940
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THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION
HEARST SAN SIMEON SHM
Various ADA Improvements
San Luis Obispo County, California

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HEARST SAN SIMEON SHM

Various ADA Improvements

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State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

**PUBLIC WORKS
NOTICE TO CONTRACTORS**

HEARST SAN SIMEON SHM
Various ADA Improvements
San Luis Obispo County, California
Bid Number: C09E0003

Sealed bids will be received at the office of the Department of Parks and Recreation, One Capitol Mall, Suite 410, Sacramento, California 95814, **up to 2 p.m., Tuesday, August 25, 2009**, at which time and place they will be publicly opened and read for performing the work as follows:

Furnish all labor, materials, tools and equipment necessary to provide various architectural and site ADA improvements which include: ADA modifications to the interior of the Hearst Visitor Center and State Parks offices; site modifications to the bus loading area and the addition of a new bus shelter; modifications to ADA parking in the main parking lot, ADA path of travel improvements to the Visitor Center, District Offices, bus loading area, and various other site work at the **HEARST SAN SIMEON SHM**, San Luis Obispo County, California, complete and in accordance with the plans and specifications therefore and such addenda thereto as may be issued prior to bid opening date.

License required: A or B

Engineer's Estimate: \$892,970

NOTE: A job showing will be held at 10:00 a.m., Wednesday, August 5, 2009, at the Main Parking Lot at the Visitor Center at HEARST SAN SIMEON SHM, 750 Hearst Castle Road, San Simeon, California 93452. Attendance at the job showing is MANDATORY and will be the only opportunity made available for prospective bidders to view the site with park personnel. No Bid will be considered from a Prime Contractor that did not attend the mandatory job showing.

The bidder agrees to complete all work within **ONE HUNDRED FIFTY (150)** calendar days from the date of written notice to commence work. This time includes ten (10) calendar days allowed for the contractor to begin work.

Prospective bidders may examine and obtain the bid forms, specifications, plans and addenda (if any) by downloading this bid package from the Department of General Services' (DGS) website at <http://www.eprocure.dgs.ca.gov/CSCRAAds.htm>. At the website in the middle of the page for the first SEARCH pane, enter the following Bid Number: **C09E0003**. Then select the option for "Bid Number", select the "Search"

Button, and select Park/Project description link to view the full advertisement. The bid package is also available on CD, free of charge, and can be obtained by sending an email to planscounter@parks.ca.gov or by faxing a request to Plans Counter at (916) 445-9027. The CD will be sent by first class mail, unless a FedEx number is provided with the fax request. Any discrepancies, omissions, ambiguities, or conflicts in or among the contract documents or doubts as to meaning shall be brought to the State's attention by email to Plans Counter at planscounter@parks.ca.gov or FAX to (916) 445-9027 no later than 5 p.m., seven (7) calendar days prior to bid opening date.

It is the responsibility of the bidders to download any addendum as needed.

No bid will be considered unless it is made on a standard bid form furnished by the Department of Parks and Recreation, and is made in accordance with the "Instructions to Bidders".

Bids must be submitted for the entire work as described herein. The Department of Parks and Recreation reserves the right to waive any irregularity in a bid or to reject any or all bids.

The apparent low bidder will be required to execute a contractual agreement in the form of a "Standard Agreement - Form 213" which shall be binding upon the State of California only upon approval by the State.

Bond requirements for contracts exceeding \$5,000 are stated in the General Conditions, DPR 483, Section 00700.

In accordance with the provisions of Section 1770, 1773 and 1773.1 of the Labor Code, the Department has ascertained that the general prevailing rate of wages in the county in which the work to be done be as listed by the Department of Industrial Relations (415) 703-4780. A copy of this listing is on file at the address listed above or at www.dir.ca.gov.

Participation in Small Business Preference Program: Preference will be granted to bidder properly approved as "Small Business" in accordance with Section 1896, et seq., Title 2, California Code of Regulations. A small business firm must have an approved certification form (STD. 813) on file at the Office of Small Business and DVBE Services, 707 Third Street, First Floor – Room 400, West Sacramento, California 95605, by 5:00 p.m. of bid opening date (website address: <http://www.eprocure.dgs.ca.gov/default.htm>). If bidder wants "Small Business" preference on this project, bidder must sign STD. 811 form (Small Business Preference and Certification Request) and submit with bid.

Non-Small Business Preference

A five percent (5%) bid preference is available to a non-small business proposing firms claiming twenty-five percent (25%) California certified small business subcontractor participation. If claiming the non-small business subcontractor preference, the proposal must include a list of the small business(es) with which you commit to subcontract in an amount of at least twenty-five percent (25%) of the net bid price with one of more California certified small businesses. Each

listed certified small business must perform a "commercially useful function" in the performance of the contract as defined in Government Code Section 14837(d)(4). **Indicate in your Proposal whether or not you are claiming the non-small business preference.** The required list of California certified small business subcontracts must be attached to the proposal and must include the following: 1) subcontractor name, 2) address, 3) phone number, 4) a description of the work to be performed and/or products supplied, 5) and the dollar amount or percentage of the net bid price (as specified in the solicitation) per subcontractor.

Proposers claiming the five percent (5%) preference must commit to subcontract at least twenty-five percent (25%) of the net bid price with one or more California certified small businesses. Completed certification applications and required support documents must be submitted to the office of Small Business and DVBE Services (OSDS) no later than 5:00 p.m. on the bid due date, and the OSDS must be able to approve the application as submitted. Questions regarding certification should be directed to the OSDS at (916) 375-4940.

Participation in Disabled Veteran Enterprise Program: All DPR contracts over \$10,000 shall have a participation goal of not less than 6% for Disabled Veteran Business Enterprises. **ALL REFERENCES ON THE STD 840, DOCUMENTATION OF DVBE PROGRAM REQUIREMENTS, THAT REFER TO 3% PARTICIPATION ARE HEREBY AMENDED TO READ 6%.** In addition to other contracting requirements, to qualify as a responsive bidder, the bidder must either certify that the required goal has been achieved, or demonstrate that a good faith effort was made to meet the goal. Note: Ads must be published at least 14 days prior to the bid due date (refer to Page 3 of the DVBE requirements).

DVBE Incentive: For evaluation purposes only, an incentive will be given to bidders who meet the DVBE requirements, either through achieving the 6% DVBE participation or achieving less than the minimum 6% DVBE participation and completing a Good Faith Effort.

Notice of Requirement for Nondiscrimination Program: Your attention is called to the "Nondiscrimination Clause" set forth or referred to herein, which is applicable to all nonexempt State construction contracts, and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth herein. (Refer to General Conditions at www.ols.dgs.ca.gov/Standard+Language.)

DEPARTMENT OF PARKS AND RECREATION
Ruth G. Coleman, Director

SECTION 00100
PUBLIC WORKS
INSTRUCTIONS TO BIDDERS

PART 1. GENERAL

1.01 EXAMINATION OF BID DOCUMENTS AND SITE

- A. *Bidder shall carefully examine and thoroughly acquaint himself/herself with the conditions at the site of the work, the plans, the specifications and the provisions contained in the project manual. He/she shall investigate conditions character, quality and quantity of surface, and sub-surface materials of obstacles to be encountered. Failure by the bidder to acquaint himself/herself with site conditions and available information will not relieve him/her from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The submission of a bid will be considered as conclusive evidence that the bidder has made such examination.*
- B. Questions pertaining to the Plans and Specifications which may arise during the bidding period shall be directed to the Department of Parks and Recreation office listed in the Notice to Contractors.

1.02 DISCREPANCIES

- A. Any discrepancies, omissions, ambiguities, or conflicts in or among the contract documents or doubts as to meaning shall be brought to the state's attention not later than seven days prior to bid opening date.
- B. All interpretations and clarifications will be in the form of written addenda. All bidders are responsible to inquire as to addenda issued. All addenda become part of the contract documents. Any oral representations issued shall be of no force or effect.

1.03 BIDS AND BIDDERS

- A. Before submitting bids, all bidders must be licensed in the appropriate classification in accordance with provisions in Chapter 9, Division 3, of the "California Business and Professions Code" as amended.

No bidder may bid on work of a kind for which he/she is not properly licensed by the Contractors State License Board, and any such bid received will be rejected. Joint venture bidders must possess a joint venture license.
- B. State shall not award a contract to a bidder, nor shall a bidder be eligible to bid for or receive a contract, who has, in the preceding five years, been convicted of violating a state or federal law respecting the employment of undocumented aliens.
- C. Bids shall be signed and submitted on the Bid Form provided and shall be filled out in the same name style, manner and license number as bidder is licensed with the Contractors State License Board.
- D. Each bid shall have listed therein the name, address, license number and portion of the work of each subcontractor to whom the bidder proposes to subcontract portions of the work in an amount in excess of 1/2 of 1 percent of the total bid in accordance with the "Subletting and Subcontracting Fair Practices Act," commencing with Section 4100 of the Public Contract Code. The contractor agrees that he/she is fully qualified to perform that portion of the work, and that he/she shall perform that portion of the work for which a subcontractor has not been listed.
- E. Bids exceeding \$5,000 shall have enclosed cash, a cashier's check, certified check, or a bidder's bond, executed as surety by a corporation authorized to issue surety bonds in the State of California, made payable to "Director of Parks and Recreation," in an amount equal to at least 10 percent of amount of bid. No such bid shall be considered unless one of the forms of bidder's security is enclosed therewith. If bidder's security is a bidder's bond, it must be executed on a form approved by the state. Personal checks are not acceptable.

Within 10 days after the contract award the Department of Parks and Recreation will return all bidder's security, other than bidder's bonds, accompanying proposals that are not to be further considered in making the award. Retained bidder's security will be held until the contract has been fully executed, after which all bidder's security, except bidder's bonds, will be returned.

- F. Bids shall not be qualified. Any proposal modifying the conditions of the bid will be disregarded, or will be cause for rejection of the bid. Deviations from the Plans and Specifications shall not be considered and shall be cause for rejection of the bid.
- G. Bids shall include the cost of all items shown on the Plans, mentioned in the Specifications, or reasonably inferred therefrom as necessary to complete the work within the intent of the contract documents.
- H. Bid shall include all applicable federal, state and other taxes, together with the cost of all permits, licenses and the like, which may be required under various laws and regulations.
- I. Amounts shall be written in figures.
- J. Bids shall be submitted in an envelope using the pre-addressed label provided with the bidders checklist. This envelope shall be sealed and delivered to the place shown prior to the time and date for the bid opening. This envelope must have the return address of the bidder. It is the responsibility of the bidder to see that his/her bid is received in proper time. Facsimile (FAX) responses will not be considered.
- K. No bids will be accepted after the time set for the bid opening.
- L. Bids will be opened and read publicly at the time set for the bid opening, or as soon as practicable thereafter.
- M. Any bid may be withdrawn prior to the time fixed in the Notice to Contractors for submitting bids, provided a request for withdrawal is submitted in writing, signed by the bidder or his duly authorized representative and filed at or faxed to the place shown on the Notice to Contractors. *An oral, telegraphic, or telephonic request to withdraw or alter a bid proposal is not acceptable.*
- N. No bid may be withdrawn after the time fixed in the Notice to Contractors for submitting bids.
- O. No bids shall be considered unless a sworn statement is executed by the bidder on the form provided by the state titled "NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS," DPR 837, and submitted with the bid. BIDDER'S SIGNATURE ON THE FORM MUST BE NOTARIZED.
- P. In the case of a tie bid, the determination of a successful bidder will be made by a coin toss in the presence of all interested bidders, at a time and date set by the state.
- Q. Bids exceeding \$10,000 shall meet the Disabled Veteran Business Enterprise (DVBE) participation goal or bidders shall make a good faith effort to meet this goal as prescribed herein.

1.04 CONTRACT

- A. **Bids shall remain valid for 120 calendar days after the bid opening date:** The State will endeavor to execute a contract within 120 calendar days from the bid opening date. The contract is not executed until the appropriate State agency has approved the contract. Bidders shall hold their bids for 120 calendar days after the bid opening date. Upon expiration of 120 calendar days from the bid opening date, bidders may withdraw their bids. If bidder, after expiration of 120 calendar days from the bid opening fails to withdraw its bid and a contract is subsequently approved by the appropriate State agency and executed, bidder shall have no claim for any reason to amend its bid.
- B. If the contract is awarded, it will be awarded to lowest responsible bidder whose bid complies with all prescribed requirements, which may include a "Small Business Bidder" in accordance with California Code of Regulations, Title 2, Section 1896 et seq.
- C. The apparent low bidder, in order to qualify as the lowest responsible bidder, will be required to execute and deliver to the state the required contract documents.

- D. The apparent low bidder shall execute the required number of copies of the contract documents and return them within seven (7) days, not including Saturdays, Sundays and Legal Holidays, after he/she has received notice that he/she is the apparent low bidder. Signature of the apparent low bidder on the contract documents will complete identification of these documents.

Failure to provide the required executed contract documents within the seven (7) days, not including Saturdays, Sundays and Legal Holidays may be deemed refusal of an award which shall be cause for forfeiture of bidder's security.

The state may award to the next lowest responsible bidder and avail itself of all legal remedies provided by statute.

- E. The contract shall be binding upon the state only after approval by the state. Should work begin in advance of receiving notice that the Contract is approved, that work shall be considered as having been done by a volunteer and Contractor shall go unpaid.

1.05 CERTIFICATE OF INSURANCE

The contractor shall furnish a Certificate of Insurance to the state as described in General Conditions, DPR 483, Section 00700.

1.06 CALIFORNIA PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

Bidder shall be required to submit a DPR 20 (California Public Contract Code Section 10162 Questionnaire) for bids that exceed \$147,000. Failure to submit this form with the bid shall not be cause for rejection; however, bidders must furnish the completed form within the time frame prescribed by the Department of Parks and Recreation. Failure to submit the required information within the time frame prescribed by the Department of Parks and Recreation may be deemed refusal of an award which shall be cause for forfeiture of bidder's security.

Exhibit B, Attachment 1
PUBLIC WORKS BID FORM

BID TIME	BID DATE
2 PM	August 25, 2009
PROJECT LOCATION	
HEARST SAN SIMEON SHM	
PROJECT NAME	
Various ADA Improvements	

Nondiscrimination Compliance Statement: The prospective contractor's signature affixed hereon and dated shall constitute a certification under penalty of perjury under the laws of the State of California that the bidder has, unless exempted, complied with the nondiscrimination program requirements of Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

Verification: By signing this Bid Form, the bidder assures the state that it has not been convicted of violating a state or federal law regarding the employment of undocumented aliens, in the preceding five years.

The prospective contractor's signature affixed hereon and dated shall constitute a certification that the representations made by the prospective contract in the bid are made under penalty of perjury under the laws of the State of California.

Important: Pursuant to Title 2, California Code of Regulations, Section 8103 and Business and Professions Code Section 7028.15, no bid will be considered unless it contains the certifications and license information requested on this form. The State reserves the right to waive any irregularity in any bid or to reject any or all bids.

CERTIFICATION

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective Contractor to the clause(s) listed above. This certification is made under the laws of the State of California. I understand that failure to submit the Public Works Bid Form without the appropriate bidder signature will result in rejection of the bid.

BY (Authorized Signature) _____ DATE _____

PRINTED NAME AND TITLE OF PERSON SIGNING _____

CONTRACTOR/BIDDER FIRM NAME (Printed)	PHONE NO.	FAX NO.
ADDRESS	EMAIL ADDRESS:	
CITY/STATE/ZIP CODE		
LICENSE CLASSIFICATION	LICENSE NO.	LICENSE EXPIRATION DATE
STATUS OF BUSINESS (Check appropriate box.)		
☐ Individual.		
☐ Corporation. State in which incorporated: _____		
☐ Partnership. Full names of partners: _____		

Listed hereinafter are the names, addresses and contractor's license numbers of all subcontractors who will perform work or labor or render services in an amount in excess of one-half of one percent of the general contractor's total bi if this bid is accepted and the portion of the work that each will perform. Material vendors are not included.

KIND OF WORK	NAME AND ADDRESS	LICENSE NO.

The bidder hereby proposes to furnish all labor, materials, tools and equipment necessary to provide various architectural and site ADA improvements which include: ADA modifications to the interior of the Hearst Visitor Center and State Parks offices; site modifications to the bus loading area and the addition of a new bus shelter; modifications to ADA parking in the main parking lot, ADA path of travel improvements to the Visitor Center, District Offices, bus loading area, and various other site work **SAN SIMEON SHM**, San Luis Obispo County, California, complete and ready for use in accordance with the contract documents therefore, for the following lump sum which shall include all applicable taxes and other expenses:

Base Bid Lump Sum Total: \$ _____

Base Bid Lump Sum Total Written Out:

ADDENDUM ACKNOWLEDGEMENT (Please initial for Addendums received)

Addendum #1 _____ Addendum #3 _____

Addendum #2 _____ Addendum #4 _____

The bidder agrees to complete all work within **ONE HUNDRED FIFTY (150)** calendar days from the date of written notice to commence work. This time includes ten (10) calendar days allowed for the contractor to begin work.

Participation in Disabled Veteran Enterprise Program: All DPR contracts over \$10,000 shall have a participation goal of not less than 6% for Disabled Veteran Business Enterprises. **ALL REFERENCES ON THE STD 840, DOCUMENTATION OF DVBE PROGRAM REQUIREMENTS, THAT REFER TO 3% PARTICIPATION ARE HEREBY AMENDED TO READ 6%.** In addition to other contracting requirements, to qualify as a responsive bidder, the bidder must either certify that the required goal has been achieved, or demonstrate that a good faith effort was made to meet the goal. Note: Ads must be published at least 14 days prior to the bid due date (refer to Page 3 of the DVBE requirements).

DVBE Incentive: For evaluation purposes only, an incentive will be given to bidders who meet the DVBE requirements, either through achieving the 6% DVBE participation or achieving less than the minimum 6% DVBE participation and completing a Good Faith Effort.

SMALL BUSINESS PREFERENCE: *To assist the Department in a timely evaluation of bids received, any bidder requesting the small business preference on this project is encouraged to submit along with signed STD. 811 - Small Business Preference and Certification Request, a copy of his/her small business certification approval letter from the State Office of Small Business and Disabled Veteran Business Enterprise Certification.*



IMPORTANT NOTICE

DVBE FORM STD 840

ALL REFERENCES ON THE STD 840, *DOCUMENTATION OF DVBE PROGRAM REQUIREMENTS*, THAT REFER TO 3% PARTICIPATION ARE HEREBY AMENDED TO READ 6%.

BIDDERS MUST FULLY DOCUMENT AT LEAST ONE OF THE FOLLOWING OPTIONS TO COMPLY WITH DVBE REQUIREMENTS:

OPTION A – COMMITMENT TO FULL 6% DVBE GOAL

Bidder is a DVBE or uses identified DVBE(s) to meet full 6% participation goal.

OPTION B – GOOD FAITH EFFORT

Bidder must fully document all 4 contacts made with DVBE resources as well as publish advertisements. DVBE ads must be published at least 14 days prior to the bid due date.

OPTION C – BUSINESS UTILIZATION PLAN

Applies only to goods, information technology and services.

**IF YOU HAVE ANY QUESTIONS OR NEED HELP FILLING OUT THE
FORMS, CONTACT JAN VANDERBECK AT (916) 654-9788**

California Disabled Veteran Business Enterprise Program Requirements

(REV. 9-15-03)

AUTHORITY. The Disabled Veteran Business Enterprise (DVBE) Participation Goal Program for state contracts is established in Public Contract Code (PCC), Section 10115 et seq., Military and Veterans Code, Section 999 et seq. and California Code of Regulations, Title 2 (2CCR), Section 1896.60 et seq.

The minimum DVBE participation percentage is 3% for this solicitation unless another percentage is specified in the solicitation.

INTRODUCTION. The bidder must document at least one of the options (A, B or C) in this document to comply with this solicitation's DVBE program requirements. Bids or proposals (hereafter called "bids") that fail to fully document one of the DVBE program requirements options shall be considered non-responsive and ineligible for award.

All information submitted by the intended awardee to comply with this solicitation's DVBE requirements will be verified by the State. If evidence of an alleged violation is found during the verification process, the State shall initiate an investigation with this information in accordance with the requirements of the Public Contract Code, Section 10115, et seq. and the Military and Veterans Code, Section 999 et seq. and follow the investigatory procedures required by the California Code of Regulations, Section 1896.80.

Only State of California, Office of Small Business and DVBE Certification certified DVBEs who perform a commercially useful function relevant to this solicitation may be used to satisfy the DVBE program requirements. The criteria for performing a commercially useful function are contained on page 5, Resources & Information and California Code of Regulations, Title 2, Section 1896.61(l). Verify each DVBE subcontractor's/supplier's certification with the Office of Small Business and DVBE Certification Section to ensure DVBE eligibility.

To meet the DVBE program requirements, bidders must complete and fully document at least one of the following compliance options:
Option A - Commitment to full DVBE participation - For a bidder who is a DVBE or who is able to meet the commitment to use identified DVBE(s) to fulfill the full DVBE participation goal.
Option B - Good Faith Effort - For a bidder documenting its completed effort, made prior to the bid due date, to obtain DVBE participation that may result in partial or no DVBE participation.
Option C - Business Utilization Plan - For a bidder using an annual plan (subject to approval) to satisfy DVBE participation requirements. Applies only to solicitations for goods and information technology.

PLEASE READ ALL INSTRUCTIONS CAREFULLY. These instructions contain information about the DVBE program requirements, bidder responsibilities, and requirements for performing and documenting each of the three available options as detailed below. Bidders are responsible for thorough review and compliance with these instructions. Document your option selection on the attached STD Form 840, Documentation of Disabled Veteran Business Enterprise Program Requirements.

OPTION A – COMMITMENT -- Commit to meet or exceed the DVBE participation requirement in this solicitation by either Method A1 or A2. Bidders must document DVBE participation commitment by completing and submitting the attached STD 840. Failure to complete and submit STD 840 (Side 1) as instructed shall render your bid non-responsive.

The bidder must provide, prior to contract award, a written agreement signed by the bidder and each proposed DVBE subcontractor. The written agreement will include the DVBE scope of work, work to be performed by the DVBE, term of intended subcontract with the DVBE, anticipated dates the DVBE will perform required work, rate and conditions of payment, total amount of contract to be paid to the DVBE, and the percentage of the entire contract that will be awarded to the DVBE, with each DVBE subcontractor. If this information is contained in the bidder's DVBE written agreement of intent, the agreement may be attached to the STD 840. If further verification is necessary, the state will obtain additional information to verify the above requirements.

Method A1. Certified DVBE bidder:

- a. Commit to performing at least 3% of the contract bid amount (unless otherwise specified) with your firm or in combination with other DVBE(s).
- b. Document DVBE participation on STD 840 (Side 1) and attach a copy of all applicable certifications.
- c. A DVBE bidder working in combination with other DVBEs shall be requested to submit proof of its commitment by submitting a written agreement with the DVBE(s) identified in its bid's STD 840. When requested, the written agreement must be submitted to the address or facsimile number specified and within the timeframe identified in the notification. Failure to submit the requested written agreement as specified may be grounds for bid rejection.

Method A2. Non-DVBE bidder:

- a. Commit to using certified DVBE(s) for at least 3% (unless otherwise specified) of the bid amount.
- b. When a bidder commits to less than the required 3% DVBE participation or its commitment may fall below 3% if specific line items/groups are not selected for award, then Option B, Good Faith Effort must be completed in addition to Option A, Commitment.
- c. Document DVBE participation on STD 840 (Side 1) and attach a copy of the DVBE's certification.
- d. Prior to contract award, a bidder is to submit proof of their commitment by submitting a written agreement with the DVBE(s) identified in its bid's STD 840. The awarding department contracting official named in this solicitation will contact each listed DVBE, by mail, fax or telephone, for verification of the bidder's submitted DVBE information. The written agreement must be submitted to the address or facsimile number specified and within the timeframe identified in the notification. Failure to submit the written agreement as specified may be grounds for bid rejection.

OPTION B – GOOD FAITH EFFORT (GFE) performance and documentation requirements must be completely satisfied prior to bid submission if you are unable to obtain and commit to the full DVBE participation percentage goal (Option A) and do not exercise Option C. Perform and document the following Steps 1 through 5 on both sides of the attached STD 840 form. Failure to perform and document GFE Steps 1 through 5 as instructed, which includes properly completing and submitting both sides of STD 840, shall result in your bid being deemed non-responsive. Step 3, Advertisement, is required unless specifically waived for this solicitation due to time limits imposed by the awarding department.

Step 1 Awarding Department - Contact the department's contracting official named in this solicitation to identify interested DVBEs. You must fully document this contact and describe the results on STD 840 (Side 2).

Step 2 Other State and Federal Agencies, and Local Organizations

STATE Contact the Department of General Services, Procurement Division's (DGS-PD) Office of Small Business and DVBE Certification (OSDC) to obtain a list of certified DVBEs by telephone at (916) 322-5060 for the 24-hour automated telephone system or (916) 375-4940 for the receptionist during normal business hours. This information can also be obtained by searching the online database at <http://www.pd.dgs.ca.gov/smbus>. Begin by selecting Certified Firm Inquiry Services, then search by using either the Keyword Search or the Standard Query options. You must fully document this contact and describe the results on STD 840 (Side 2).

FEDERAL Search the U.S. Small Business Administration's (SBA) online database (Pro-Net) at <http://www.pro-net.sba.gov> to identify potential DVBEs. Select these minimum options in the following sequence: select Search Database, select CA under "State"; select Service Disabled Veteran under "Other Ownership Data"; and "Search Using These Criteria" at the page bottom. The database takes a few moments to query, and then your list will appear on your screen. You may select other criteria to focus your search. You must fully document this contact and describe the results on STD 840 (Side 2).

LOCAL Contact at least one local DVBE organization to identify DVBEs. For a list of local DVBE organizations, please refer to the DVBE Resource Packet that may be accessed online (<http://www.pd.dgs.ca.gov/smbus> - select "DVBE Resource Packet") or obtain a hardcopy by requesting it from DGS-PD Office of Small Business and DVBE Outreach and Education (see the Resources & Information page). You must fully document your contact with local DVBE organizations and describe the results on STD 840 (Side 2).

Step 3 Advertisements are mandatory unless waived by the awarding department.

CONTENT REQUIREMENTS: Include all of the following in your advertisement(s): (1) company name; (2) contact name; (3) address; (4) telephone and facsimile (if applicable) numbers; (5) e-mail address (if applicable); (6) the state's solicitation number(s); (7) goods and/or services for which the state is soliciting; (8) the location of the work to be performed; and (9) the State's bid(s) due date and/or your due date for receiving DVBE responses.

HOW MANY & WHERE TO PUBLISH: Bidders must publish two (2) ads, one (1) each in a trade paper and a DVBE focus paper unless the paper is dual purpose (fulfilling both trade and focus requirements as defined in California Code of Regulations, Title 2, Section 1896.61(k)), in which case one (1) ad is acceptable. Please see <http://www.pd.dgs.ca.gov/smbus> for a list of DVBE Trade and Focus Paper Listings.

WHEN: Ads must be published after the solicitation's release date and at least 14 days prior to the bid due date, unless a different time period is expressly established in this solicitation.

DOCUMENT & SUBMIT: On STD 840 (Side 2), document the publication name(s) in which you published advertisement(s), the contact name and phone number, and date of publication. Include a copy(ies) of the advertisement(s) with your bid.

Step 4 Invitations to Participate

WHO: Invite (solicit) DVBEs who can provide relevant goods and/or services to this solicitation to subcontract with you. Conducting Steps 1 through 3 produces a list of DVBEs from which you may choose potential DVBE subcontractors/suppliers to contact. Bidders are advised to contact as many DVBEs (who provide relevant goods and/or services in the applicable location(s)) as possible. Non-California-certified DVBEs are not eligible -- please refer those DVBEs to the OSDC to learn about certification (see the Resources & Information page for contact information).

FOR WHAT: Solicit DVBEs for goods and/or services relevant to the state's solicitation. If you are unable to identify specific portion(s) of the proposed contract to subcontract, the state encourages bidders to avoid making a predetermination that no DVBEs are able to perform without first contacting and soliciting participation from them. This allows DVBEs to respond whether they can or cannot provide any goods or services related to the solicitation, and provides a bidder with responses for consideration.

HOW TO INVITE & CONTENT REQUIREMENTS: Written invitations are required. At a minimum, invitations must contain all of the following: (1) company name; (2) contact name; (3) address; (4) phone and facsimile (if applicable) numbers; (5) return e-mail address (if applicable); (6) the state's solicitation number (NOT APPLICABLE FOR DPR); (7) goods and/or services for which the state is soliciting; (8) location of work; and (9) the State's bid(s) due date and/or your due date for receiving DVBE responses.

WHEN: Provide DVBE's with a reasonable time period to receive and respond to your invitation, and to be considered by you for participation as described in Step 5, prior to your bid submission.

DOCUMENT & SUBMIT: Bidders must document the completed contacts on STD 840 (Side 1), Section A. Attach additional copies of STD 840A as necessary to list your DVBE contacts. You are required to attach a copy of (1) each invitation or offer sent by letter, fax or e-mail; and (2) confirmation of transmission and delivery. Your bid shall be considered non-responsive if it fails to include copies of the written invitations and delivery confirmations.

Step 5 Consider all responding DVBEs for contract participation. Consideration must be based on business needs for the contract and the same evaluation criteria must be applied to each potential DVBE subcontractor/supplier offering the same goods and services. You must document on STD 840 (Side 1), Section A any firm(s) selected for participation; or if not selected, the reason for non-selection. Attach additional copies of STD 840A as necessary to list all of your DVBE contacts.

OPTION C – THE DVBE BUSINESS UTILIZATION PLAN (BUP) option permits bidders to submit an approved DVBE BUP to satisfy DVBE participation solicitation requirements up to 3%. **DVBE BUPs apply only to solicitations for goods and information technology (IT) goods and services.** DVBE BUPs are a company's commitment to expend a minimum of 3% of its total statewide contract dollars with DVBEs -- this percentage is based on all of its contracts in the State, not just those with the State. DVBE BUPs must be submitted to and approved by the DGS-PD prior to the bid due date. Please call the DGS-PD, Office of Small Business and DVBE Outreach and Education for assistance. Bidders choosing this option must properly complete and submit STD 840 (Side 1) and include a copy of its approval letter with the bid; failure to submit these documents shall render your bid non-responsive.

RESOURCES AND INFORMATION

For assistance in preparing a responsive participation document, **contact the contracting official at the awarding department for this solicitation.** In accordance with Public Contract Code Section 10115.2(b)(3), bidders must advertise in trade and focus publications unless the requirement is waived. The Department of General Services, Procurement Division (DGS-PD) publishes a list of trade and focus publications to assist bidders in meeting these contract requirements. To obtain this list, please contact the DGS-PD Office of Small Business and DVBE Outreach and Education and request the "DVBE Resource Packet."

U.S. Small Business Administration (SBA)

Internet contact only – see instructions for website navigation
PRONET Database: <http://www.pro-net.sba.gov>

FOR:

Service-Disabled Veteran-owned businesses in California

(Remember to verify each DVBE's California certification.)

Local Organizations (see the DVBE Resource Packet available from DGS-PD DVBE Program Section listed below)

FOR:

List of potential DVBE subcontractors

DGS-PD Office of Small Business and DVBE Certification (OSDC)

707 Third Street, Room 400, West Sacramento, CA 95605
Website: <http://www.pd.dgs.ca.gov/smbus>
24-hour automated information
& document requests: (916) 322-5060
Receptionist: (916) 375-4940
Fax: (916) 375-4950

FOR:

**Directory of Certified DVBEs
Certification Applications
Certification Information
Certification Status, Concerns**

DGS-PD Office of Small Business and DVBE Outreach and Education

707 Third Street, 2nd Floor, West Sacramento, CA 95605
Voice, 8 am—5 pm: (800) 559-5529
Fax: (916) 375-4597

FOR:

**DVBE Program Participation Requirements
DVBE Program Info. and Statewide Policy
DVBE Resource Packet
DVBE Business Utilization Plan
Small Business/DVBE Advocates**

Advertisement Format Example

This example offers a suggested format that includes required information outlined in Option B, Good Faith Effort, Step 3. You can substitute the applicable information for the bolded, italicized words.

DVBEs are invited to participate as a potential subcontractor/supplier to perform a commercially useful function specific to **DGS' IFB No. 12345** for ***fencing materials in Chowchilla.***
DVBE responses due to me 1/1/02;
Bids due to the State 1/15/02.

Contact: **ABC Company**
Jane Doe, General Manager
123 Main Street, Sacramento, CA 95814
voice: **555/555-5555**; fax: **555/555-5556**
or e-mail: ***jane.doe@abcco.com***

Commercially Useful Function Definition

California Code of Regulations, Title 2, § 1896.61(l):

The term "DVBE contractor, subcontractor or supplier" means any person or entity that satisfies the ownership (or management) and control requirements of Section 1896.61(f); is certified in accordance with Section 1896.70; and provides services or goods that contribute to the fulfillment of the contract requirements by performing a commercially useful function. A DVBE contractor, subcontractor or supplier is considered performing a commercially useful function when it meets the following criteria:

(1) The business concern is: responsible for the execution of a distinct element of the work of the contract; carrying out its obligation by actually performing, managing or supervising the work involved; and performing work that is normal for its business services and functions, and

(2) The business concern is not further subcontracting a greater portion of the work than would be expected by normal industry practices.

DOCUMENTATION OF DISABLED VETERAN BUSINESS ENTERPRISE PROGRAM REQUIREMENTS

STD 840 (REV. 9-15-2003)

Designation Of Option Check the appropriate box(es) to indicate the option(s) with which you choose to comply, complete the applicable sections and attach the required supporting documentation. You are advised to read all instructions carefully prior to completing this form. Remember that only California certified DVBEs who can provide related goods and/or services may be used to satisfy these program solicitation requirements.

- ☐ **OPTION A – I commit to meeting the full DVBE contract participation requirement.**
Complete STD 840, Section A.
- ☐ **OPTION B – I performed and documented a Good Faith Effort (GFE) in an attempt to obtain DVBE participation.**
Complete STD 840, Section A (for GFE Steps 4 & 5) and STD 840 (REVERSE), Section B (for GFE Steps 1–3).
- ☐ **OPTION C – I submit a copy of my firm's "Notice of Approved DVBE Business Utilization Plan."**

A. Full information must be provided.

For contract participation commitment, at least one DVBE must be listed. DVBEs must perform a commercially useful function. List the specific goods and/or services with the dollar and/or percentage value(s) that the DVBE(s) commit(s) to provide and the DVBE's tier (prime contractor = 0, subcontractor to prime contractor = 1, subcontractor to Tier 1 subcontractor = 2, etc.). If both the estimated dollar amount and percentage are listed, the higher value supercedes. Attach additional pages to list all other DVBE subcontractors/suppliers (you may use STD 840A). During contract performance, all requests for substituting named DVBEs must be made in accordance with the provisions of California Code of Regulations, Title 2, Section 1896.64(c).

For Good Faith Effort (GFE), use this section to document your first completed contacts with (Step 4), and consideration of (Step 5), relevant DVBEs. Business reasons for non-selection must be documented. Attach additional pages to list all other DVBE contacts (you may use STD 840A). Copies of all written invitations and delivery confirmations must also be attached and submitted with the bid.

BOTH SECTIONS MUST BE COMPLETED FOR GOOD FAITH EFFORT	AT LEAST ONE DVBE MUST BE NAMED FOR PARTICIPATION	Date Contacted / /	DVBE Company Name (If you are the Prime and a DVBE enter your name, otherwise enter the solicited subcontractor.)		
		DVBE Contact Name & Reference #	Telephone Number ()	Fax Number ()	E-mail (if available)
		Street Address, City, State and Zip Code			
		☐ Yes, I am, or I will subcontract with, the listed DVBE to provide the following goods and/or services:			
		Specific Goods and/or Services		Estimated \$ and/or % \$ / %	Tier
		OR	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		
		Date Contacted / /	DVBE Company Name		
		DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
		Street Address, City, State and Zip Code			
OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:				
	Specific Goods and/or Services		Estimated \$ and/or % \$ / %	Tier	
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:				

ATTACH ADDITIONAL PAGES (OR USE STD 840A) TO LIST ALL OTHER DVBE CONTACTS

Go to Side 2, Section B to continue Good Faith Effort documentation ⇨

ADDITIONAL DISABLED VETERAN BUSINESS ENTERPRISE CONTACTS

STD 840A (EST. 9-15-2003)

- B. Documentation of Good Faith Effort Steps 1, 2 and 3**—Remember to carefully read all instructions prior to completing this form. Please refer to the Resources & Information page for detailed contact information and a sample advertisement format.

STEP 1. Contact the Awarding Department (the contracting official, unless another contact is specified) to identify potential DVBE subcontractors/suppliers, **and document this contact as required.**

Date / /	Contact Name: <i>ATTENTION BIDDERS: CONTACT JAN VANDERBECK</i>	Telephone Number (916) 654-9788
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Describe Result

STEP 2. Contact all of the following and document your contacts as required: Other state and federal agencies and local organizations to identify potential DVBE subcontractors/suppliers.

Other State Agency – Procurement Division, Office of Small Business and DVBE Certification (Certification Office)

PHONE CONTACT OR ONLINE SEARCH	Date / /	Telephone Number (916) 375-4940	Contact Name	☐ I contacted the Certification Office for a list of California certified DVBEs.
	Date / /	Internet Address http://www.pd.dgs.ca.gov/smbus		☐ I searched the Certification Office's online database to identify California certified DVBEs.

Describe Result

Federal Agency – U.S. Small Business Administration (SBA) online database

Date / /	Internet Address http://www.pro-net.sba.gov	☐ I searched the federal online database for California DVBEs.
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Describe Result

Local DVBE Organizations – Contact at least one local DVBE organization—refer to the DVBE Resource Packet for a list of acceptable contacts. (<http://www.pd.dgs.ca.gov/smbus> - select “DVBE Resource Packet”)

Date / /	Organization Name	Contact Name	Telephone Number and/or Internet Address () http://www.
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Describe Result

Date / /	Organization Name	Contact Name	Telephone Number and/or Internet Address () http://www.
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Describe Result

STEP 3. Publish advertisements: Two (2) advertisements: One (1) ad in an accepted trade paper; and one (1) ad in an accepted DVBE focus paper (please see the DVBE Trade and Focus Paper listings for a list of all accepted publications); unless the paper is dual purpose (fulfilling both trade and focus requirements), in which case one (1) ad is acceptable. **Document this step as required and remember to attach a copy of your advertisement(s).**

Focus Paper Name (list full name)		Contact Name	Telephone Number ()
Address		Date Ad Published / /	
Trade Paper Name (list full name)		Contact Name	Telephone Number ()
Address		Date Ad Published / /	

☐ I certify the ad was placed to reach both trade and focus audiences through this one publication.

Trade and Focus Paper Name (list full name)		Contact Name	Telephone Number ()
Address		Date Ad Published / /	

ADDITIONAL DISABLED VETERAN BUSINESS ENTERPRISE CONTACTS

STD 840A (EST. 9-15-2003)

This document may be used as a continuation from Section A, STD 840 (REV. 9-15-2003)

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

ADDITIONAL DISABLED VETERAN BUSINESS ENTERPRISE CONTACTS

STD 840A (EST. 9-15-2003) (REVERSE)

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

Date Contacted / /	DVBE Company Name		
DVBE Contact Name	Telephone Number ()	Fax Number ()	E-mail (if available)
Street Address, City, State and Zip Code			

OR	☐ Yes, I will subcontract with the listed DVBE to provide the following goods and/or services:		
	Specific Goods and/or Services	Estimated \$ and/or % \$ / %	Tier
	☐ No, I am unable to subcontract with the DVBE for the following business reasons:		

DVBE Program Requirements Supplier Checklist (REV. 9-15-2003)

Please do not submit this checklist with your bid. It is provided for your use only. Checking every box of your elected compliance option does not guarantee that your bid will be evaluated compliant.

☐ **OPTION A: COMMITMENT TO DVBE CONTRACT PARTICIPATION**

- ☐ STD 840 included with bid
- ☐ DVBE Written Agreement
- ☐ Designated the Commitment Option – Checked the first box
- ☐ Listed at least one California certified DVBE subcontractor
- ☐ Checked the box(es) for “Yes ...”
- ☐ Listed specific goods and/or services DVBE(s) agrees to provide
- ☐ Proposed DVBE contract performance is a “commercially useful function” relevant to the contract
- ☐ Listed the estimated dollar amount and/or percentage of contract for the DVBE’s participation
- ☐ Proposed DVBE participation meets the 3% requirement (unless a different percentage is specified)
- ☐ Attached a copy of the DVBE’s certification letter from the Department of General Services

☐ **OPTION B: GOOD FAITH EFFORT (GFE)**

- ☐ STD 840 included with bid
- ☐ Designated the GFE Option – Checked the second box
- ☐ (Step 4) Listed all DVBEs contacted and invited to perform on the proposed contract
- ☐ Confirmed that listed DVBEs are California certified
- ☐ Attached copies of the invitations sent to the listed DVBEs
- ☐ Invitations included the required contact information
- ☐ Attached copies of the delivery confirmations for invitations to DVBEs (e.g. mail receipts, fax confirmations, etc.)
- ☐ (Step 5) Checked the “No” boxes and listed the business reasons for non-selection of DVBEs contacted
- ☐ (Step 1) Contacted the Awarding Department and listed contact and results
- ☐ (Step 2) Contacted Other State agency (Office of Small Business and DVBE Certification) and listed the contact and results
- ☐ (Step 2) Searched the Federal Pro-net internet database and noted the results
- ☐ (Step 2) Contacted Local DVBE Organization(s) and listed the contact and results
- ☐ (Step 3) Advertised – IF NOT WAIVED
 - Listed full information for the advertisement(s) and publication(s)
[2 ads in one trade and in one DVBE focus publication; **OR** 1 ad in one dual-purpose publication]
- ☐ Attached a copy of the advertisement(s)
- ☐ The advertisement(s) were published at least 14 days prior to the bid due date
- ☐ The advertisement(s) included my required contact information

☐ **OPTION C: BUSINESS UTILIZATION PLAN (BUP)**

- ☐ **Prior to the bid due date** -- Submitted a BUP to DGS-PD and received approval
- ☐ STD 840 included with bid
- ☐ Designated the BUP Option – Checked the third box
- ☐ Attached a copy of the BUP Approval letter from DGS-PD

DISABLED VETERAN BUSINESS ENTERPRISE DECLARATIONS

STD. 843 (Rev. 11/2005)

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: _____

PO/Contract Description (materials/supplies/services/equipment): _____

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: _____

(If more than one firm, list on extra sheets.)

(Print or Type Name)

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 Number of Owner)

(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)

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)
) ss
COUNTY OF _____)

(Name)

(Position title)

(The bidder)

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 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.

DATED: _____

By _____
(Person signing for bidder)

Subscribed and sworn to

before me on _____

(Notarial Seal)

(Notary Public)

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

BIDDER'S BOND

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, _____

_____, as Principal, and as Surety,
are held and firmly bound unto the State of California, hereinafter called the State, in the penal sum of ten percent (10%) of the
total amount of the bid of the Principal above named, submitted by said Principal to the State of California, Department of Parks
and Recreation for the work described below, for the payment of which sum in lawful money of the United States, well and truly
to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION of this obligation is such that:

WHEREAS, the Principal has submitted the above-mentioned bid to the State of California, Department of Parks and Recreation,
for certain construction specifically described as follows, for which bids are to be opened at

(Insert place where bids will be opened)

_____, on _____
(Insert date of bid opening)

for _____
(Copy here the exact description of work, including location, as it appears on the proposal)

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the
specifications, after the prescribed forms are presented to him or her for signature, enters into a written contract, in the prescribed
form, in accordance with the bid, and files the two bonds with the Department, one to guarantee faithful performance and the other
to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall be
and remain in full force and virtue.

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

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this _____ day of _____, 20 ____.

(SEAL)

(SEAL)

(SEAL)

Principal

(SEAL)

(SEAL)

(SEAL)

Surety

NOTE: Signatures of those executing for the Surety must be properly acknowledged.

CERTIFICATE OF ACKNOWLEDGEMENT

State of California

County of _____ ss

On this _____ day of _____ in the year of 20 _____ before me, a notary public in and for the county and state
aforesaid, personally appeared, _____
known to me to be the person whose name is subscribed to the within instrument and known to me to be the attorney-in-fact of
_____ and acknowledged to me that
he subscribed the name of the said company thereto as surety, and his own name as attorney-in-fact.

(SEAL)

Notary Public

SMALL BUSINESS PREFERENCE AND CERTIFICATION REQUEST
(For Construction Contractors Only)

STD. 811 (REV 6-2001)(CA ST PKS, EXCEL 2/25/2009)

READ BEFORE SIGNING
(THIS REQUEST MUST REMAIN WITH THE BID PACKAGE)• **1. PENALTY ASSESSMENT**

A business will be assessed a penalty and be ineligible to transact any business with the Department for furnishing incorrect information. (Title 2 of the California Code of Regulations)

• **2. ~~PUBLIC WORKS AGREEMENTS EXCEEDING \$100,000 AND REQUIRING TYPES "A" OR "B" CONTRACTORS LICENSE~~**

~~On public works agreements where the lowest responsible bid exceeds \$100,000, and the work to be performed requires a type "A" or "B" contractor's license and two or more subcontractors will be used, preferences shall only be granted to those small business bidders who certify, under penalty of perjury, that at least fifty percent (50%) of subcontractors utilized on the job are certified small businesses. In meeting the 50% requirement, bidders may use certified small business and/or small businesses that have applied for certification no later than 5:00 P.M. on the bid opening date and are subsequently granted certification. The 50% small business subcontractor utilization level shall be maintained through the term of the contract.~~

• **3. JOINT BIDDERS/COMBINATION BIDDERS**

Bidders bidding jointly or as a combination of several business organizations are especially cautioned that such bidders must be jointly licensed and approved in the form and style in which the bid is executed

• **4. NAME STYLE**

The Small Business Preference and Certification Request must be signed in the same name style in which the bidder is licensed by the Contractors' State License Board.

BIDDER'S(S) LEGAL NAME STYLE

FEDERAL EMPLOYER IDENTIFICATION NUMBER

OSBCR CERTIFICATION NUMBER

CERTIFICATION

- **5.** The undersigned hereby requests preference as a "SMALL BUSINESS" and further certifies under penalty of perjury, that the firm still meets the requirements of Section 1896(L) Title 2 of the California Code of Regulations. A completed form STD. 813 meeting all applicable requirements must be on file in the Office of Small Business Certification and Resources (OSBCR) by 5:00 p.m. of the bid opening date. The form STD. 813 may be obtained from the OSBCR Office at 1531 I Street, Second Floor, Sacramento, CA or can be downloaded at www.dgs.ca.gov/osbcr.

BIDDER'S SIGNATURE

DATE SIGNED

• **6. BIDDERS RECEIVING BONDING ASSISTANCE**

In the event the bidder has received assistance in obtaining bonding for this project, he/she shall set forth the name and nature of the firm providing such assistance. Should the firm be listed as a subcontractor, bidder shall set forth the percentage of the contract to be performed by the subcontractor.

NAME OF FIRM PROVIDING BONDING ASSISTANCE

NATURE OF FIRM PROVIDING BONDING ASSISTANCE

SUBCONTRACTOR ASSISTANCE

☐ YES - Percentage _____☐ NO

CALIFORNIA PUBLIC CONTRACT CODE SECTION 10162
— Questionnaire —

PARK UNIT NAME	PROJECT NAME
NAME OF BUSINESS	

In accordance with Section 10162 of the California Public Contract Code, bidders shall complete, under penalty of perjury, the question below. Please answer the following:

HAVE YOU, ANY OFFICER OF YOUR BUSINESS, OR ANY EMPLOYEE OF YOUR BUSINESS WHO HAS PROPRIETARY INTEREST IN YOUR BUSINESS EVER BEEN DISQUALIFIED, REMOVED, OR OTHERWISE PREVENTED FROM BIDDING ON, OR COMPLETING A FEDERAL, STATE, OR LOCAL GOVERNMENT PROJECT BECAUSE OF A VIOLATION OF LAW OR VIOLATION OF SAFETY REGULATIONS? ☐ **Yes** (Explain circumstances below. Attach additional pages if needed.) ☐ **No**

SAMPLE

NOTICE TO BIDDERS

Bidders are cautioned that making false certification may subject the certifier to criminal prosecution.

The Department of Parks and Recreation (DPR) reserves the right under California Public Contract Code Section 10162 to reject any bidder, any officer of such bidder, or any employee of such bidder who has a proprietary interest in such bidder who has been disqualified, removed or otherwise prevented from bidding on, or completing a federal, state or local government project because of a violation of law or violation of safety regulations.

Failure to return this form with the bid shall not be cause for rejection; however, bidders must furnish the completed form within the time frame prescribed by the DPR. Failure to submit this form within the time frame prescribed by the DPR may be deemed refusal of an award which shall be cause for forfeiture of bidder's security.

CERTIFICATION

By my signature, I certify under penalty of perjury under the laws of the State of California that the foregoing questionnaire and statements pursuant to California Public Contract Code Section 10162 are true and correct

BIDDER SIGNATURE

PRINTED NAME

DATE



DARFUR CONTRACTING ACT CERTIFICATION

Pursuant to Public Contract Code section 10478, if a bidder or proposer currently or within the previous three years has had business activities or other operations outside of the United States, it must certify that it is not a "scrutinized" company as defined in Public Contract Code section 10476.

Therefore, to be eligible to submit a bid or proposal, please complete only one of the following three paragraphs (via initials for Paragraph # 1 or Paragraph # 2, or via initials and certification for Paragraph # 3):

1. _____ We do not currently have, or we have not had within the previous three
Initials years, business activities or other operations outside of the United States.

OR

2. _____ We are a scrutinized company as defined in Public Contract Code section
Initials 10476, but we have received written permission from the Department of General Services (DGS) to submit a bid or proposal pursuant to Public Contract Code section 10477(b). A copy of the written permission from DGS is included with our bid or proposal.

OR

3. _____ We currently have, or we have had within the previous three years,
Initials business activities or other operations outside of the United States, but we
+ certification certify below that we are not a scrutinized company as defined in Public
below Contract Code section 10476.

CERTIFICATION For #3

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective proposer/bidder to the clause listed above in # 3. This certification is made under the laws of the State of California.

PROPOSER/BIDDER FIRM NAME (Printed)		FEDERAL ID NUMBER
BY (Authorized Signature) ▶		
PRINTED NAME AND TITLE OF PERSON SIGNING		
DATE EXECUTED	EXECUTED IN THE COUNTY AND STATE OF	

YOUR BID OR PROPOSAL WILL BE DISQUALIFIED UNLESS YOUR BID OR PROPOSAL INCLUDES THIS FORM WITH EITHER PARAGRAPH #1 OR #2 INITIALED, OR PARAGRAPH #3 INITIALED AND CERTIFIED.

STANDARD AGREEMENT

STD 213[PW] (Rev 06/03)(CA ST PKS, EXCEL 10/20/2004)

AGREEMENT NUMBER

REGISTRATION NUMBER

1. This Agreement is entered into between the State Agency and Contractor named below:

STATE AGENCY'S NAME

CONTRACTOR'S NAME

2. The term of this Agreement is: _____ through _____

3. The maximum amount \$ _____ of this Agreement is:

4. The parties agree to comply with the terms and conditions of the following exhibits which are by this reference made a part of the Agreement.

Exhibit A - Scope of Work _____ page(s)

Exhibit B - Budget Detail and Payment Provisions _____ page(s)

Exhibit C* - General Terms and Conditions _____ page(s)

Check mark one item below as Exhibit D:

☐
☐

Exhibit - D Special Terms and Conditions (Attached hereto as part of this agreement)

page(s)

Exhibit D, Attachment 1 - Project Manual

pages

Exhibit E - Additional Provisions

pages

Items shown with an Asterisk (*), are hereby incorporated by reference and made part of this agreement as if attached hereto.
These documents can be viewed at www.ols.dgs.ca.gov/Standard+Language

IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.

CONTRACTOR

CONTRACTOR'S NAME (if other than an individual, state whether a corporation, partnership, etc.)

BY (Authorized Signature)

DATE SIGNED(Do not type)



PRINTED NAME AND TITLE OF PERSON SIGNING

ADDRESS

STATE OF CALIFORNIA

AGENCY NAME

BY (Authorized Signature)

DATE SIGNED(Do not type)



PRINTED NAME AND TITLE OF PERSON SIGNING

ADDRESS

**California Department of General
Services Use Only**

☐ Exempt per:

Contractor's Name:
Agreement Number:
Page: _____ of _____

**EXHIBIT A — Public Works
(Standard Agreement)**

SCOPE OF WORK

1. Contractor agrees to furnish all labor, tools, materials and equipment necessary to:

2. The work shall be performed at:

3. The work shall be provided during:

4. The project representatives during the term of this agreement will be:

State Agency:		Contractor:	
Section/Unit:		Section/Unit:	
Attention:		Attention:	
Address:		Address:	
City/State/Zip Code:		City/State/Zip Code:	
Phone:		Phone:	
Fax:		Fax:	

**EXHIBIT B — PUBLIC WORKS
(Standard Agreement)**

BUDGET DETAIL AND PAYMENT PROVISIONS

1. Invoicing and Payment

- A. For services satisfactorily rendered, and upon receipt and approval of the invoices, the State agrees to compensate the Contractor for actual expenditures incurred in accordance with the rates specified in the Bid Form, marked Exhibit B, Attachment 1, which is attached hereto and made a part of this Agreement.
- B. Invoices shall include the Agreement Number and shall be submitted in triplicate not more frequently than monthly in arrears to:

State's Representative's Name
State's Rep Service Center
Service Center Address
Service Center City/State/Zip

2. Budget Contingency Clause

- A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.
- B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State, or offer an agreement amendment to Contractor to reflect the reduced amount.

3. Prompt Payment Clause

Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927.

4. Compensation

Contractor shall submit to the State an itemized request for payment, in triplicate, no more than once each 30 day period. All invoices or requests for payment, not on Contractor's preprinted stationery, shall be signed by the Contractor or his authorized representative and submitted to the State's Representative as indicated in paragraph 1B above.

Ten percent (10%) shall be retained from each progress payment and held by the State as partial security for the fulfillment of the contract by the Contractor. The State shall pay the Contractor the value of such work, as estimated therein, after deducting therefrom all previous payments, and all amounts to be retained under the provisions of this Agreement. No progress payments will be made by the State for project terms less than thirty (30) days. The one and only payment will be the final payment made by the State upon satisfactory completion of all work required under the contract documents.

Contractor's Name:

Agreement Number:

Page: 1 of 1

**EXHIBIT D — PUBLIC WORKS
(Standard Agreement)**

SPECIAL TERMS AND CONDITIONS

1. Project Manual

The Project Manual, marked Exhibit D, Attachment I, containing instructions to bidders, general conditions, plans and specifications, and other pertinent bid documents related to this project, as enumerated in the Project Manual's Table of Contents, is hereby attached and incorporated into this agreement.

2. Public Works - Rules/Regulations

Contractor shall observe and comply with all federal, state, city, and county laws, rules or regulations affecting the work. Any work done that does not comply with any laws, rules, or regulations will be remedied at the Contractor's expense.

SAMPLE

PAYMENT BOND TO ACCOMPANY CONSTRUCTION CONTRACT
(CIVIL CODE SECTION 3247)

BOND NO. _____

The premium on this bond is _____ for the term _____

Know All Men By These Presents:

That The State of California, acting by and through the _____

has awarded to _____ whose address is _____

(CONTRACTOR / PRINCIPLE)

_____ as Principle, a contract for the work described as follows:

WHEREAS, The provisions of Civil Code Section 3247 require that the Principle file a bond in connection with said contract and this bond is executed and tendered in accordance therewith.

NOW THEREFORE, Principle and _____, a corporation organized
under the laws of _____ (SURETY)

, and authorized to transact a general surety business in the State California, as Surety, are held and firmly bound to the People of the State of California in the penal sum of _____

(_____), for which payment

we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

1. That if said Principle or its subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principle and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, that the Surety herein will pay for the same, otherwise this obligation is to be void. In case suit brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.

2. This bond shall insure to the benefit of any persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

3. The aggregate liability of the Surety hereunder, including costs and attorney fees, on all claims whatsoever shall not exceed the penal sum of the bond in accordance with the provisions of Section 996.470(a) of the Code of Civil Procedure.

4. The bond is executed by the Surety, to comply with the provisions of Chapter 7, Title 15, Part 4, Division 3 of the Civil Code and of Chapter 2, Title 14, Part 2 of the Code of Civil Procedure and said bond shall be subject to all of the terms and provisions thereof.

5. This bond may be cancelled by the Surety in accordance with the provisions of Section 996.310 et seq. of the Code of Civil Procedure.

6. This bond to become effective _____

(NAME OF SURETY)

(ADDRESS)

I certify (or declare) under penalty of perjury that I have executed the foregoing bond under an unrevoked power of attorney.

Executed in _____ on _____
(CITY AND STATE) (DATE)

under the laws of the State of California.

(SIGNATURE OF ATTORNEY IN FACT)

(PRINTED OR TYPED NAME OF ATTORNEY IN FACT)

PERFORMANCE BOND TO ACCOMPANY CONTRACT

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, The State of California, acting by and through the Department of Parks and Recreation, has awarded to _____ a corporation existing under and by virtue of the laws of the State of California as principal, hereinafter designated as the "Contractor", a contract for the work described as follows:

AND WHEREAS, Said Contractor is required to furnish a bond in connection with said contract, guaranteeing the faithful performance thereof;

NOW, THEREFORE, We the undersigned Contractor and surety are held and firmly bound unto the State of California, in the sum of _____ and No Cents (\$_____) to be paid to the State or its certain attorney, its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if the above bound Contractor, his or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the foregoing contract and any alteration thereof made as therein provided, on his or their part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the State of California, its officers and agents, as therein stipulated, then this obligation shall become and be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this _____ day of _____, 20____.

By _____

Contractor

Name of Surety

(Seal)

By _____

Attorney-in-Fact

NOTE: Signatures of those executing for the surety must be properly acknowledged, and a Power of Attorney attached.

CERTIFICATE OF ACKNOWLEDGEMENT

State of California

County of _____ ss

On this _____ day of _____ in the year 20____ before me, a notary public in and for

The county and state aforesaid, personally appeared _____
(Attorney-in-Fact)

Known to me to be the person whose name is subscribed to the within instrument and known to me to be the Attorney-in-Fact of _____ and acknowledged to me that he subscribed the name of the said company thereto as surety, and his own name as Attorney-in-Fact.

(SEAL)

NOTARY PUBLIC

STD. 204 (Rev. 6-2003)(CA ST PKS. EXCEL 9/22/2004)

1	INSTRUCTIONS: Complete all information on this form. Sign, date, and return to the State agency (department/office) address shown at the bottom of this page. Prompt return of this fully completed form will prevent delays when processing payments. Information provided in this form will be used by State agencies to prepare Information Returns (1099). See reverse side for more information and Privacy Statement. NOTE: Governmental entities, federal, State, and local (including school districts), are not required to submit this form.		
2	PAYEE'S LEGAL BUSINESS NAME (Type or Print) _____ SOLE PROPRIETOR— ENTER NAME AS SHOWN ON SSN (Last, First, M.I.) _____ EMAIL ADDRESS _____ MAILING ADDRESS _____ BUSINESS ADDRESS _____ CITY, STATE, ZIP CODE _____ CITY, STATE, ZIP CODE _____		
3 PAYEE ENTITY TYPE CHECK ONE BOX ONLY	ENTER FEDERAL EMPLOYER IDENTIFICATION NUMBER (FEIN): ☐ PARTNERSHIP ☐ ESTATE OR TRUST ☐ INDIVIDUAL OR SOLE PROPRIETOR ENTER SOCIAL SECURITY NUMBER: _____ CORPORATION: ☐ MEDICAL (e.g., dentistry, psychotherapy, chiropractic, etc.) ☐ LEGAL (e.g., attorney services) ☐ EXEMPT (nonprofit) ☐ ALL OTHERS _____		NOTE: Payment will not be processed without an accompanying taxpayer I.D. number.
4 PAYEE RESIDENCY STATUS	☐ California resident - Qualified to do business in California or maintains a permanent place of business in California. ☐ California nonresident (see reverse side) - Payments to nonresidents for services may be subject to State income tax withholding. ☐ No services performed in California. ☐ Copy of Franchise Tax Board waiver of State withholding attached.		
5	I hereby certify under penalty of perjury that the information provided on this document is true and correct. Should my residency status change, I will promptly notify the State agency below. AUTHORIZED PAYEE REPRESENTATIVE'S NAME (Type or Print) _____ TITLE _____ SIGNATURE _____ DATE _____ TELEPHONE () _____		
6	Please return completed form to: Department/Office: _____ Unit/Section: _____ Mailing Address: _____ City/State/Zip: _____ Telephone: () _____ Fax: () _____ E-mail Address: _____		

PAYEE DATA RECORD

STD. 204 (Rev. 6-2003)(REVERSE)(CA ST PKS, EXCEL 9/22/2004)

1	<u>Requirement to Complete Payee Data Record, STD. 204</u> A completed Payee Data Record, STD. 204, is required for payments to all non-governmental entities and will be kept on file at each State agency. Since each State agency with which you do business must have a separate STD. 204 on file, it is possible for a payee to receive this form from various State agencies. Payees who do not wish to complete the STD. 204 may elect to not do business with the State. If the payee does not complete the STD. 204 and the required payee data is not otherwise provided, payment may be reduced for federal backup withholding and nonresident State income tax withholding. Amounts reported on Information Returns (1099) are in accordance with the Internal Revenue Code and the California Revenue and Taxation Code								
2	Enter the payee's legal business name. Sole proprietorships must also include the owner's full name. An individual must list his/her full name. The mailing address should be the address at which the payee chooses to receive correspondence. Do not enter payment address or lock box information here.								
3	Check the box that corresponds to the payee business type. Check only one box. Corporations must check the box that identifies the type of corporation. The State of California requires that all parties entering into business transactions that may lead to payment(s) from the State provide their Taxpayer Identification Number (TIN). The TIN is required by the California Revenue and Taxation Code Section 18646 to facilitate tax compliance enforcement activities and the preparation of Form 1099 and other information returns as required by the Internal Revenue Code Section 6109(a). The TIN for individuals and sole proprietorships is the Social Security Number (SSN). Only partnerships, estates, trusts, and corporations will enter their Federal Employer Identification Number (FEIN).								
4	<u>Are you a California resident or nonresident?</u> A corporation will be defined as a "resident" if it has a permanent place of business in California or is qualified through the Secretary of State to do business in California. A partnership is considered a resident partnership if it has a permanent place of business in California. An estate is a resident if the decedent was a California resident at time of death. A trust is a resident if at least one trustee is a California resident. For individuals and sole proprietors, the term "resident" includes every individual who is in California for other than a temporary or transitory purpose and any individual domiciled in California who is absent for a temporary or transitory purpose. Generally, an individual who comes to California for a purpose that will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident. Payments to all nonresidents may be subject to withholding. Nonresident payees performing services in California or receiving rent, lease, or royalty payments from property (real or personal) located in California will have 7% of their total payments withheld for State income taxes. However, no withholding is required if total payments to the payee are \$1,500 or less for the calendar year. For information on Nonresident Withholding, contact the Franchise Tax Board at the numbers listed below: <table border="0"> <tr> <td>Withholding Services and Compliance Section:</td> <td>1-888-792-4900</td> <td>E-mail address:</td> <td>wscs.gen@ftb.ca.gov</td> </tr> <tr> <td>For hearing impaired with TDD, call:</td> <td>1-800-822-6268</td> <td>Website:</td> <td>www.ftb.ca.gov</td> </tr> </table>	Withholding Services and Compliance Section:	1-888-792-4900	E-mail address:	wscs.gen@ftb.ca.gov	For hearing impaired with TDD, call:	1-800-822-6268	Website:	www.ftb.ca.gov
Withholding Services and Compliance Section:	1-888-792-4900	E-mail address:	wscs.gen@ftb.ca.gov						
For hearing impaired with TDD, call:	1-800-822-6268	Website:	www.ftb.ca.gov						
5	Provide the name, title, signature, and telephone number of the individual completing this form. Provide the date the form was completed.								
6	This section must be completed by the State agency requesting the STD. 204.								
	<u>Privacy Statement</u> Section 7(b) of the Privacy Act of 1974 (Public Law 93-579) requires that any federal, State, or local governmental agency, which requests an individual to disclose their social security account number, shall inform that individual whether that disclosure is mandatory or voluntary, by which statutory or other authority such number is solicited, and what uses will be made of it. It is mandatory to furnish the information requested. Federal law requires that payment for which the requested information is not provided is subject to federal backup withholding and State law imposes noncompliance penalties of up to \$20,000. You have the right to access records containing your personal information, such as your SSN. To exercise that right, please contact the business services unit or the accounts payable unit of the State agency(ies) with which you transact that business. All questions should be referred to the requesting State agency listed on the bottom front of this form.								

SECTION 00700 GENERAL CONDITIONS

1.01 DEFINITIONS

- A. Acceptance (or Final Completion)** – Acceptance occurs when all the provisions and requirements of the Contract are complete and is so certified by State's Representative.
- B. Bulletin** – A Bulletin is a written order directed to Contractor and issued by State's Representative, directing a minor change or making a clarification in the Work, or requesting information from Contractor about the Work. A Bulletin is to be used for minor changes or clarifications which State's Representative believes will have no impact on the Contract Sum or Contract Time.
- C. Calendar Day (or Day)** – A Calendar Day is a day of twenty-four (24) hours measured from one midnight to the next midnight, Pacific Time. Unless otherwise indicated, a "day" shall mean a Calendar Day.
- D. Change Order (or Amendment)** – A Change Order is a written modification of the Contract Documents made in accordance with the provisions of Section 1.08 of these General Conditions and which has been signed by State and Contractor.
- E. Contract (or Contract Documents)** – The Contract shall consist of the Notice to Contractors; Instructions to Bidders; Bid Form; Bidders Bond; Standard Agreement – STD. 213; General Conditions; STD. 807, Payment Bond; Performance Bond; Special Provisions; Specifications; Plans; STD. 811, Small Business Preference and Certification; Certificate of Insurance; Addenda; Amendments; Non Collusion Affidavit; Disabled Veteran Business Enterprise Compliance Certification and Documentation; and any other provisions made a part thereto by reference.
- F. Contract Time** – The Contract Time shall be the number of Calendar Days specified in which the Work is to be completed including any adjustments and/or time extensions that may be granted by State in accordance with the terms of the Contract.
- G. Contract Sum** – The Contract Sum is the total amount of money stated in the Contract as payable to Contractor for the performance of the Work under the Contract, including authorized adjustments thereto.
- H. Contractor** – The Contractor is the person, firm, individual, partnership, company, corporation, association, joint venture, or any combination thereof, who has entered into the Contract with State.
- I. Event of Default** – An Event of Default is an action that permits termination of the Contract as described herein.
- J. Field Order** – A Field Order is a written order directed to Contractor and signed by State's Representative directing a change or making a clarification in the Work, or requesting information from Contractor about the Work. A Field Order signed by Contractor indicates receipt of the Field Order. A Field Order shall be followed by a Change Order.
- K. Legal Holidays** – Legal Holidays are every Sunday; January 1; 3rd Monday in January; February 12; 3rd Monday in February; March 31; the last Monday in May; July 4; 1st Monday in September; 2nd Monday in October; November 11; Thanksgiving Day and the following Friday; December 25; and every day so declared by the President of the United States or the Governor of California. If January 1, February 12, March 31, July 4, November 11, or December 25 falls on a Sunday, the following Monday is a holiday. If November 11 falls on a Saturday, the preceding Friday is a holiday.
- L. Milestone Date** – A Milestone Date is a significant point in the development of the Work that is illustrated on Contractor's Project Work Schedule.
- M. Not-in-Contract (NIC)** – Not -in-Contract means work not included in the Contract.
- N. Project** – The Project means the erection, construction, alteration, repair, or improvement to be accomplished under the Contract.
- O. Project Work Schedule** – The Project Work Schedule is the schedule furnished by Contractor to State in accordance with Section 1.06A(2) of these General Conditions displaying the anticipated schedule for completing the Work.
- P. Punch List** – The Punch List is the list prepared as a result of a final inspection conducted by State at the completion of the Work indicating items to be completed, corrected, and/or replaced with regard to the Work as specified in the Contract Documents.

- Q. Regular Work Hours** – Eight hours labor constitutes a legal day's work and this Work period shall occur between the hours of 8:00 a.m. and 5:00 p.m. on Working Days unless otherwise agreed by State's Representative.
- R. Schedule of Values** – The Schedule of Values is the statement furnished by Contractor to State in accordance with Section 1.09A of these General Conditions displaying the portions of the Contract Sum allotted for the various parts of the Work and the projected schedule of payment.
- S. State** – The State means the State of California, Department of Parks and Recreation (DPR) and the Director of DPR.
- T. State's Representative** – The State's Representative is the person designated by State to oversee and manage the Contract and completion of the Work on behalf of State and who is the authorized representative of State for this Project. The term State's Representative may be used interchangeably with Project Manager. **CONTRACTOR SHALL ONLY TAKE DIRECTION FROM STATE'S REPRESENTATIVE FOR THE CONTRACT AND MAY NOT RELY ON THE COMMUNICATIONS, REPRESENTATIONS OR OTHER INSTRUCTIONS OF OTHER EMPLOYEES, OFFICERS, MANAGERS, CONTRACTORS, OR AGENTS OR REPRESENTATIVES OF STATE UNLESS CONFIRMED BY STATE'S REPRESENTATIVE IN WRITING OR AS OTHERWISE, FROM TIME TO TIME, MAY BE PERMITTED BY THE PROVISIONS OF THE CONTRACT.**
- U. Subcontractor** – A Subcontractor is anyone having a direct contract with Contractor or another Subcontractor and includes one who furnishes material worked to a special design according to the Plans and/or Specifications, but does not include one who merely furnishes material not so worked.
- V. Substantial Completion** – Substantial Completion is the point at which, in the discretion of State, in accordance with Section 1.09D of these General Conditions, the Project may be used for the purpose for which it is being constructed exclusive of Punch List items which do not interfere with such use and may be completed notwithstanding use of the Project.
- W. Supplier** – A Supplier is anyone who contracts with Contractor or a Subcontractor to furnish materials or equipment for the Project.
- X. Work** – The Work is everything required to complete the Project, including, but not limited to, all labor, suppliers, material, equipment, and tools.
- Y. Working Day** – A Working Day is every day except Saturdays, Sundays, and Legal Holidays and those days not charged as Working Days pursuant to the Contract Documents.

1.02 CORRELATION AND INTENT OF CONTRACT DOCUMENTS

- A.** The General Conditions are incorporated into the Contract Documents in their entirety and may not be revised or modified in any way, except by the Supplemental Conditions.
- B.** What is required by one document shall be as binding as if required by all. In the event of conflicts among the Contract Documents, such conflicts shall be resolved by giving the documents the following order of priority: (1) The Contract between State and Contractor, as the same may be amended (Amendments and revisions of later date take precedence over those of earlier date); (2) Special Conditions; (3) General Conditions; and (4) Drawings and Specifications. Drawings govern Specifications for quantity and location, and Specifications govern Drawings for quality and performance. In the event of ambiguity in quantity or quality, the greater quantity and the higher quality shall govern. Dimensions shall be figured rather than determined by scale or rule. Full-size or large-scale details or Drawings shall govern small-scale details or Drawings.
- C.** Where conflict exists between the Contract Documents or between the Contract Documents and applicable standards under codes or ordinances promulgated by governmental bodies having jurisdiction over the Project, **CONTRACTOR SHALL BE DEEMED TO HAVE AGREED TO PERFORM THE MOST STRINGENT OR HIGHEST QUALITY WAY OF PERFORMING THE WORK.**
- D.** Should Contractor discover conflicts, omissions, or errors in the Contract Documents or have any question concerning interpretation or clarification of the Contract Documents, or if it appears to Contractor that the Work to be done or any matters relative thereto are not sufficiently detailed or explained in the Contract Documents, then, before proceeding with the Work affected, Contractor shall immediately notify State's Representative in writing, using an approved Request For Information (RFI) form, and request interpretation, clarification, or furnishing of additional detailed instructions concerning the Work. Such questions shall be resolved and instructions to Contractor issued within fourteen (14) Calendar Days by State, whose decision shall be final and conclusive. Should Contractor proceed with the Work affected before resolution, Contractor shall be responsible for any resultant damage or added cost, and Contractor shall remove, replace, or adjust the Work not in accordance with State's Representative subsequent instructions.
- E.** All costs and time incurred by Contractor to prepare, review, respond to, estimate, or otherwise process RFI's, Bulletins, Field Orders, Amendments, Schedules, Correspondence, or any other paperwork shall be part of Contractor's base contract overhead and no additional compensation will be allowed therefore.

1.03 CONTRACT BONDS

- A. When the Contract Sum exceeds five thousand dollars (\$5,000), Contractor shall furnish, in duplicate, a Payment Bond, to accompany the Contract, in an amount equal to one hundred percent (100%) of the Contract Sum securing payment for laborers, mechanics, and material suppliers used on the Work under the Contract. Payment Bonds shall be prepared on a Payment Bond to Accompany Construction Contract (STD. 807) as furnished by State.
- B. When the Contract Sum exceeds five thousand dollars (\$5,000), Contractor shall furnish, in duplicate, a Performance Bond, to accompany the Contract, in the amount equal to at least one hundred percent (100%) of the Contract Sum guaranteeing faithful performance of the Work. Performance Bonds may be prepared on standard bonding company forms.
- C. Payment and Performance Bonds shall be issued by a corporate surety authorized to transact a general surety business in the State of California. Contractor shall deliver its required bonds before the date of execution of the Contract.
- D. The bonds must remain in full force and effect for the entire length of time Contractor is involved with the Contract and shall include any warranty periods.

1.04 INSURANCE

A. Insurance Requirements

- (1) General Liability Insurance: Contractor shall procure commercial general liability insurance covering bodily injury, property damage, and personal injury with limits not less than one million dollars (\$1,000,000) per occurrence and two million dollars (\$2,000,000) general aggregate. Said policy shall apply separately to each insured against whom any claim is made or suit is brought subject to Contractor's limits of liability.
- (2) Builder's Risk/Installation Floater: During the term of this Contract, Contractor shall maintain in force, at its own expense, Builder's Risk/Installation Floater for an amount equal to the full amount of the Contract improvements, upon the project and all materials or items which is or will become the property of State pursuant to the Contract Documents, including, but not limited to, materials and other items at the work site or stored off-site with the consent of State. A copy of any applicable Builder's Risk/Installation Floater will be provided to State, and it shall be the responsibility of Contractor and each Subcontractor to satisfy itself as to the terms of such coverage, and to determine whether or not at its own cost, to carry any supplemental policy of insurance.
- (3) Motor Vehicle Liability Insurance: Contractor shall maintain motor vehicle liability insurance with limits not less than one million dollars (\$1,000,000) per accident. Such insurance shall cover liability arising out of an accident involving a motor vehicle in use by Contractor, including, but not limited to, Contractor owned, hired, and non-owned motor vehicles.
- (4) Workers' Compensation and Employer's Liability Insurance: Contractor shall maintain statutory Workers' Compensation and Employers' Liability Insurance for all of Contractor's employees who will be engaged in the performance of Work on Property, including special coverage extensions where applicable. Contractor is required to meet all requirements as stated in California Labor Code, Section 3700.

- B. **Insurance Policies** – Each policy of insurance shall: (1) Be in a form acceptable by State; (2) be written by an insurer acceptable to State; (3) be maintained at Contractor's sole expense; (4) require a minimum of thirty (30) days written notice to State prior to any cancellation, non-renewal, or modification of insurance coverage; (5) contain an endorsement naming the State of California, its officers, agents, employees, and servants as additionally insured, but only with respect to Work performed for the State of California under this Contract or permit, at no cost to State; (6) be in full force for the complete term of the Contract including any warranty periods; and (7) be primary, and not in excess, to any insurance carried by State.

C. Insurance Companies

- (1) Insurance companies issuing any of the policies required by these provisions shall have a rating classification of "A" or better and a financial size category rating of "VII" or better according to the latest edition of the A.M. Best Key Rating Guide. Any other rating classification requires State approval.
- (2) All insurance companies issuing any of the policies required by these provisions shall be licensed to do business in the State of California.

D. Certificate of Insurance

- (1) Concurrent with the execution of the Agreement, Contractor shall provide to State evidence that the insurance required to be

carried by these provisions, including any endorsement affecting the additional insured status, is in full force and effect and that premiums therefore have been paid. Such evidence shall be furnished on the insurance industry's standard ACORD Form (Certificate of Insurance) or a certified copy of the original policy, including all requirements set forth in this section.

- (2) Upon notification by State of receipt of a notice of cancellation, expiration, or any reduction in coverage, or if the insurer commences proceedings or has proceedings commenced against it, indicating the insurer is insolvent, Contractor shall provide to State evidence of replacement policy at least ten (10) Working Days prior to the effective date of such cancellation, expiration, or reduction in coverage.

E. Contractor's Additional Responsibilities

- (1) Contractor is responsible for any deductible or self-insured retention contained within the insurance program.
- (2) Contractor shall ensure that all Subcontractors procure insurance meeting the requirements of these provisions.
- (3) Upon State's request, Contractor shall provide copies of its Workers' Compensation and Employers' Liability Insurance.

- F. State's Remedies** – Should Contractor fail to keep the insurance required to be carried by these provisions in full force and effect at all times, State may, in addition to any other remedies State has, terminate this Contract immediately, and all payments due or that become due will be withheld, until notice is received by State that such insurance has been restored or replaced in full force and effect and that the premiums, therefore, have been paid to cover a period of time satisfactory to State.

1.05 STATE'S RIGHTS TO STOP PERFORMANCE AND/OR CARRY OUT WORK

- A. State's Right to Stop the Work** – If Contractor fails to correct the Work which is not in accordance with the requirements of the Contract Documents or fails to carry out the Work in accordance with the Contract Documents; or fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, materials, or equipment so as to be able to complete the Work within the Contract Time; or disregards the instructions of State's Representative when based on the requirements of the Contract Documents; State may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; provided, however, the right of State to stop the Work shall not give rise to a duty on the part of State to exercise this right for the benefit of Contractor or any other person or entity and any delay resulting from such Work stoppage shall not extend any Milestone Date identified in the Contract or the required dates of Substantial or Final Completion.
- B. State's Right to Carry Out the Work** – If Contractor fails to carry out the Work in accordance with the Contract Documents and fails within a five (5) day period after written notice from State to eliminate (or commence to eliminate and thereafter work diligently to eliminate) such failure, State may, regardless of whether an Event of Default has occurred, and without prejudice to other remedies State may have, correct such deficiencies. In such case an offset may be made deducting from payments then or thereafter due Contractor the cost of correcting such deficiencies, including compensation for State's and State Representative's additional services and expenses made necessary by such default, neglect, or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall promptly pay the difference to State on demand. The correction of such deficiencies by State or by others shall not relieve Contractor of any obligation or liability for the Work and shall not operate to waive any right or claim of State.

1.06 CONTRACTOR

A. Contractor's Construction Schedules

- (1) Contractor agrees to complete the Work within the number of calendar days stated on the Bid Form from the date of written notice to commence Work. This time includes ten (10) Calendar Days allowed for Contractor to begin Work and ten (10) Calendar Days for issuance and completion of the Punch List. Upon written notice to proceed, Contractor shall begin Work and shall diligently prosecute the Work, with adequate forces, to completion within the Contract Time.
- (2) Within ten (10) Calendar Days of the Notice to Proceed, Contractor shall furnish to State one (1) electronic copy and three (3) paper copies of a Critical Path Method (CPM) Project Work Schedule, in form and content satisfactory to State Representative and utilizing Microsoft Project software, presenting an orderly and realistic plan for completing the Work. The schedule shall include all scheduled Working Days, relevant work activities by trade and critical path dates. No activity on the schedule shall have a duration longer than 15 calendar days, with the exception of fabrication and procurement, unless otherwise approved. Within five (5) Working Days from the date the Project Work Schedule is furnished to State's Representative, State's Representative shall review and comment on the Project Work Schedule and approve or disapprove it, giving reasons for any disapproval. If disapproved, Contractor shall modify the Project Work Schedule and resubmit it for approval following the above stated timeframes. Additionally, Contractor shall submit one (1) electronic copy and three (3) paper copies of the updated

Critical Path Method (CPM) Project Work Schedule with each monthly Request for Payment. The Project Work Schedule shall be maintained at the work site and all revisions, along with the reasons therefore, as well as any affect on the critical path of the Work and the completion date, shall be furnished to State as soon as possible after the date of the revision, but in no event later than five (5) days after its revision.

- (3) If the progress of the Work is behind the Project Work Schedule to such an extent that State reasonably determines that Contractor will be unable to meet any of the critical path dates set forth in the Project Work Schedule, including without limitation any Milestone Date, or Contractor fails to take prompt and adequate corrective action to State's satisfaction to bring the progress of the Work in compliance with the Project Work Schedule, State may, in addition to any other right or remedy provided herein, proceed as provided in Sections 1.05, 1.07, and/or 1.11 of these General Conditions.

(4) Liquidated Damages:

- a. Failure of Contractor to complete the Work within the Contract Time will result in damages being sustained by State. It is and will be extremely difficult and impracticable to determine the actual damage which State will sustain by reason of such delay. Therefore, Contractor shall pay to State, as liquidated damages, the sum of TWO HUNDRED FIFTY DOLLARS (\$250.00) for each and every Calendar Day's delay in finishing the Work under this Contract beyond the stipulated number of days, or any adjustments thereof. State may deduct liquidated damages from funds due or that become due Contractor. Execution of the Contract shall constitute acknowledgment by Contractor that Contractor has ascertained and agrees that State will suffer damages in the amount fixed herein.
- b. Contractor shall not be assessed liquidated damages when the delay is caused by the failure of State or the owner of any utility to provide for removal or relocation of an existing utility, facility, or to perform work as indicated in the Contract Documents.

B. Shop Drawings, Product Data, and Samples

- (1) Reference in the Contract Documents to any equipment, material, article, or process by specific brand, trade name, make, or catalog number, followed by the term "or approved equal", shall be regarded as establishing a standard of quality. In such cases Contractor may, subject to State's Representative's review and approval, substitute any other brand of equal quality, utility, and availability. State's Representative shall be the sole judge of equality and suitability of substitute materials. Contractor shall bear all costs and expenses, including, but not limited to, costs and expenses related to demonstrating equality or suitability of such substitute equipment, material, article or process, and any costs or expenses of changes or adjustments necessitated by such substitutions, including, but not limited to, those related to other parts of the Work or the Work of other contractors. State's Representative's approval of any substitution shall not relieve Contractor from compliance with all requirements of the Contract Documents. Where the Contract Documents do not specifically permit the use of "approved equals" for any equipment, material, article, or process referred to by specific brand, trade name, make or catalog number, no substitutions shall be permitted except by means of the Change Order procedures as set forth in Section 1.08 of these General Conditions.
- (2) Contractor shall not be relieved of responsibility for any deviations from requirements of the Contract Documents or allowed any additional compensation by reason of State's Representative approval of Shop Drawings, Product Data, Samples or similar submittals unless Contractor has specifically informed State's Representative in writing of such deviation at the time of submittal and fully complied with Section 1.08 of these General Conditions, and State's Representative has given written approval to the specific deviation. If Shop Drawings provide detail not shown in Contract Documents, Contractor shall be deemed to have primary design-build responsibility for such items. Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by State's approval thereof.

- C. Safety and Clean-Up** – Contractor acknowledges that State will continue to occupy and must maintain continuous operations in the Parks in which the Work is located. It is critical that these operations shall not suffer any significant interference, including, without limitation, any interruption in utilities or unreasonable noise, dust, odor, or vibration. Contractor shall perform the Work and limit its use of the Project site in such a manner as to minimize any interference with occupancies and operations in such Parks and in accordance with applicable Park rules and regulations. Contractor shall be liable for all costs for all claims related to dust, mud, noise, odor, vibration, or windblown materials attributed to the Work hereunder.

D. Potential Subcontractors

Nothing contained in this agreement or otherwise, shall create any contractual relation between State and any subcontractors, and no subcontract shall relieve Contractor of its responsibilities and obligations hereunder. Contractor agrees to be as fully responsible to State for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by Contractor. Contractor's obligation to pay its subcontractors is an

independent obligation from State's obligation to make payments to Contractor. As a result, State shall have no obligation to pay or to enforce the payment of any moneys to any subcontractor.

E. Force Majeure

Except for defaults of subcontractors, neither party shall be responsible for delays or failures in performance resulting from acts beyond the control of the offending party. Such acts shall include but shall not be limited to acts of God, fire, flood, earthquake, other natural disaster, nuclear accident, strike, lockout, riot, freight embargo, public regulated utility, or governmental statutes or regulations superimposed after the fact. If a delay or failure in performance by Contractor arises out of a default of its subcontractor, and if such default of its subcontractor, arises out of causes beyond the control of both Contractor and subcontractor, and without the fault or negligence of either of them, Contractor shall not be liable for damages of such delay or failure, unless the supplies or services to be furnished by subcontractor were obtainable from other sources in sufficient time to permit Contractor to meet the required performance schedule.

1.07 ADMINISTRATION OF THE CONTRACT

A. Claims and Disputes

- (1) Time Limits on Contractor Claims: Except where a shorter time period is provided herein, claims by Contractor arising during the course of construction, including claims for additional costs, must be made within five (5) days after occurrence of the event giving rise to such claim or within five (5) days after Contractor first recognizes or reasonably should have recognized the condition giving rise to the claim. Claims must be made by written notice to State within five (5) days following such event.
- (2) Continuing Contract Performance: Contractor, in the event of any claim or dispute with State over any matter whatsoever, shall not cause any delay or cessation in Contractor's Work and shall proceed with all Work called for in the Contract Documents and/or required to complete the Project.
- (3) Claims for Additional Cost: If Contractor wishes to make a claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Said notice shall itemize all claims, shall differentiate between extra work and base contract work, and shall contain sufficient detail and substantiating data to permit evaluation of same by State's Representative. Any change in the Contract Sum resulting from such approved claim shall only be authorized by a Change Order.
- (4) Claims for Additional Time: If Contractor wishes to make claim for an increase in the Contract Time, written notice as provided herein shall be given. Contractor's claim shall include an estimate of cost and the probable effect of delay on progress of the Work and shall document any adverse effect on the Project Work Schedule. In the case of a continuing delay, only one claim is necessary.
- (5) Claim Certification: Any claim for additional cost or time must include the following certification, signed by the Contractor's legal representative: "I certify under penalty of perjury, according to the Laws of the State of California, that this claim is made in good faith, that the supporting documentation is accurate and complete, and that the amount requested accurately reflects the contract adjustments for which the Department is responsible."
- (6) Delays in and Extensions of Time:
 - a. If (a) Work on the critical path as shown on the Project Work Schedule is delayed at any time by (i) an act or neglect of State, any employee of State, or any separate contractor employed by State, (ii) changes ordered in the Work in accordance with the provisions of Article 7, (iii) unusually severe and/or abnormal weather conditions which preclude the safe performance of the Work, (iv) national conflicts or priorities arising therefrom, (v) fires beyond the reasonable control of Contractor, (vi) floods beyond the reasonable control of Contractor, (vii) earthquakes, (viii) off-site or area-wide labor disputes which are beyond the reasonable control of Contractor, (ix) civil disturbances and for no other cause or causes; (b) Contractor would otherwise have been able timely to perform its obligations under the Contract Documents but for such delay; (c) Contractor has taken reasonable precautions to foresee, prevent and to mitigate the effects of delays to Work on the critical path due to such causes; and (d) Contractor has given written notice as required by Section 1.08 of these General Conditions; then subject to the provisions of Section 1.07 of these General Conditions, the Contract Time shall be appropriately extended by Change Order by the number of Working Days of delay on the critical path of the Work actually and directly caused by such occurrence. Such extension of Contract Time shall be net of any delays caused by or due to the fault or negligence of Contractor or which are otherwise the responsibility of Contractor or its agents or Subcontractors, and shall also be net of any contingency or "float" time allowance included in the Project Work Schedule. State may, at its option, authorize extra Work in order to accelerate the Project Work Schedule and minimize or eliminate the impact of the delay. No extension shall be made or allowed nor shall such extra Work be authorized unless a written request therefor by Contractor is made within five (5) Calendar Days after the first occurrence of the delay. Any claims of Contractor relating

to time shall be made promptly in accordance with the applicable provisions of Section 1.08 of these General Conditions, or shall be deemed waived.

- b. If adverse weather conditions are the basis for a claim for additional Contract Time, such claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had a direct and adverse effect on scheduled critical path activities.
 - c. Adjustments in compensation for delays or time extensions will be allowed only for the causes specified in (i) and (ii) of paragraph 1.07A(6)a above, which extend the overall project duration.
- (7) Disputes Resolution: A claim or dispute arising out of or relating to the Contract Documents which is not disposed of by agreement between Contractor and State shall be decided by State's Representative promptly, but not longer than ten (10) Working Days from the date Contractor notifies State's Representative in writing that agreement on a dispute cannot be reached and a written decision from State's Representative is required. The decision of State's Representative shall be final and conclusive on Contractor unless, within fifteen (15) days from the receipt of such decision, Contractor submits to State's Representative a written request for review of the decision made by State's Representative. The Director, or a designee other than State's Representative, shall review all decisions and render a decision in writing on or before thirty (30) days from the date of receipt of written position statements by Contractor and State's Representative as provided for herein. Contractor and State's Representative shall be afforded an opportunity to be heard by way of written submissions and to offer relevant information with respect to the matter in question.
- (8) Decision of Director is Final: The decision of the Director or her or his designee shall be final and conclusive on Contractor, unless, within fifteen (15) Working Days from receipt of such decision, Contractor submits to State's Representative a written notice of Contractor's election to reserve its rights to file a claim with the State Board of Control and seek further adjudication of such claim should such claim be rejected by the State Board of Control.
- (9) Arbitration: Claims (demands for monetary compensation of damages) arising out of related to the Contract Documents shall be resolved by arbitration unless State and Contractor agree in writing, after the claim has arisen, to waive arbitration and to have the claim litigated in a court of competent jurisdiction. Arbitration shall be pursuant to California Public Contract Code, Section 10240 et seq., and applicable regulations, Title 1, California Code of Regulations, Section 301 et seq. The arbitration decision shall be decided under and in accordance with the laws of the State of California, supported by substantial evidence and, in writing, contain the basis for the decision, findings of fact, and conclusions of law. Arbitration shall be initiated by a Demand for Arbitration made in compliance with the requirements of above referenced regulations. A Demand for Arbitration by Contractor shall be made not later than 180 days after date of service in person or by mail on Contractor of the final written decision by State on the claim. (This Section only applies to Contracts that exceed \$117,000.00.)
- (10) Exhaust All Administrative Remedies: Contractor must exhaust all remedies and comply with all disputes resolution procedures set forth in the proceeding section prior to filing any legal action which names the Department of Parks and Recreation, State of California, or any officer, employee, agent or affiliate of any of them. In no event, may Contractor bring any claims or pursue legal action for damages or other remedies for issues or matters not raised and presented in written notifications as provided for in the Contract Documents and as set forth in all written requests for review by State's Representative.

1.08 CHANGES IN THE WORK

- A. Change Orders (Amendments)** – When adjustments in the Contract Sum and Contract Time are determined, such determination shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order. A Change Order signed by Contractor indicates Contractor's final and binding agreement therewith, including the adjustment in the Contract Sum or the Contract Time. No Change Order shall authorize an adjustment in the Contract Sum or Contract Time unless such Change Order specifies such adjustment. If no adjustment in either or both the Contract Sum and the Contract Time is specified, Contractor's execution of the Change Order shall constitute Contractor's agreement that no such adjustment shall be made. Contractor agrees that in no event shall it make any subsequent claim relating to the items covered by an executed Change Order, whether direct, indirect, or consequential in nature. All Change Orders are subject to the approval by the Department of General Services, if required.
- B. Bulletins and Field Orders**
- (1) A Bulletin or Field Order shall not be recognized as having any impact upon the Contract Sum or the Contract Time. Contractor shall have no Claim therefor unless, within five (5) days from the date such direction or order was given, Contractor submits a written Change Order Request to the State's Representative with estimates of any adjustment in the Contract Sum or Contract Time to which Contractor believes it is entitled as a result of the change in the Work described in the Bulletin or Field Order, including sufficient detail to allow evaluation by the State's Representative.
- (2) Upon receipt of a Bulletin or Field Order, Contractor shall promptly proceed with the Work involved, or as otherwise directed by the Bulletin or Field Order.

C. Pricing Changes

- (1) When submitting its change proposal, Contractor shall include and set forth in clear and precise detail, breakdowns of labor, materials and allowable costs for all trades involved and the estimated impact on the Project Work Schedule. If requested by State, Contractor shall furnish spread sheets from which the breakdowns were prepared, plus spread sheets, if requested, of any Subcontractors. Allowable costs to be included in Contractor's change proposal shall be strictly limited to those set forth in Section 1.08C(2) of these General Conditions.
- (2) In the event that (a) State approves a Change Order to be priced on a time and material basis, (b) State issues a Field Order to proceed with a change in the Work, Contractor timely notifies State of Contractor's belief that it is entitled to an adjustment in the Contract Sum or the Contract Time as a result of such change, and State and Contractor cannot agree on the amount of such adjustment, (c) Contractor is entitled to compensation as the result of a concealed condition, or (d) the Contract Sum includes allowances, then the amount of Contractor's allowable costs shall be governed by this Subsection. Allowable costs include and shall be strictly limited to the following:

 - a. The actual and reasonable cost of additional materials required as a result of such change, purchased by Contractor (or any Subcontractor) and used in the Work, including sales taxes, freight and delivery charges.
 - b. Construction equipment costs shall be substantiated by vendor's invoices. In no event shall the cost of such items exceed (1) the average current wholesale prices at which the items are locally available in the quantities required, delivered to the site, less applicable cash or trade discounts or (2) the equipment rental rates in the Labor Surcharge and Equipment Rental Rates published by Caltrans; whichever is less. The allowable rate constitutes full compensation to the Contractor including cost of fuel, oil, lubrication, supplies, necessary attachments, repairs, maintenance, depreciation, storage, insurance, labor except for construction equipment operators, and incidentals. No costs will be allowed for time while construction equipment is inoperative, idle or on standby, unless approved by the State.
 - c. Labor costs including welfare and fringe benefits shall be the actual labor cost, required as a result of such change in the Work, including no more than one (1) working foreman, but not including any supervisory or administrative personnel. Labor costs shall not exceed the local prevailing wage, which includes the Straight-Time Total Hourly Rate plus Burden. Burden shall be limited to the actual FICA-OASDI, FUTA, SUI, and Workers' Compensation payment percentages multiplied by the sum of the Basic Hourly Rate and Vacation/Holiday payments. Labor costs shall be substantiated by daily time cards (signed by Contractor's Superintendent) and labor summaries.
 - d. The cost of Work performed by Subcontractors or sub-Subcontractors is based on the actual direct costs of material, labor, and construction equipment and is determined pursuant to the provisions of this Subsection.
 - e. For deleted Work otherwise required to be performed hereunder, the Contract Sum shall be reduced by an amount equal to the net savings to Contractor and all Subcontractors and sub-Subcontractors on account of the deleted work for material, labor, and construction equipment.
- (3) Failure of Contractor and State to agree on an adjustment of the Contract Sum or extension of Contract Time for performance under the Contract Documents shall not excuse Contractor from proceeding with the prosecution and performance of the Work as changed. State shall have the right within its sole discretion to require Contractor to commence performance of changes to the Work. If Contractor and State cannot agree on an appropriate stipulated sum for any change, the adjustment to the Contract Sum, if any, shall, subject to the provisions of Section 1.08 of these General Conditions, be determined by State on the basis of the allowable costs incurred as a result of such change as set forth in Section 1.08C(2) plus a fee as set forth in Section 1.08C(4).
- (4) In addition to the allowable costs incurred for a change, Contractor (and any Subcontractors) is entitled to a fee. Such fee shall be included in any agreed upon stipulated sum for the Change Order and shall be added to the allowable costs for Change Orders priced on a time and material basis or as to which no agreement is reached. The additional fee shall be Contractor's (and Subcontractor's) sole reimbursement for overhead, profit and any other cost (including insurance required in the Contract Documents) not specifically reimbursable under the Contract for Construction. No such fee shall be applied to gross receipts or use tax amounts or bond premiums paid by Contractor. The following fees shall apply to Contractor and all Subcontractors and represent the maximum fees chargeable on each Contract tier, who shall receive mark-ups for all categories on a percentage basis equal to Contractor's Fee stated in the Contract:

 - a. For Work to be performed by Subcontractors, such Subcontractors, cumulative of all tiers, shall be permitted an additional fee of fifteen percent (15%) of the allowable costs incurred by such Subcontractors;
 - b. For Work to be performed by Contractor's own forces, Contractor shall be permitted an additional fee in the amount of fifteen percent (15%) of the allowable costs incurred directly by Contractor;

- c. For Work to be performed by Subcontractors, Contractor shall be permitted an additional fee in the amount of five percent (5%) of the sum of the allowable costs incurred by Subcontractors plus the allowance for Subcontractors' fee provided in Subsection 4(a) above.

1.09 PAYMENTS AND COMPLETION

- A. **Schedule of Values** – The apparent low bidder, within ten (10) days, not including Saturdays, Sundays, and Legal Holidays, after receiving notice that he/she is the apparent low bidder, shall submit along with the contract documents a complete itemized Schedule of Values that includes, but is not necessarily limited to, the cost of each line item equal to or greater than one and one-half percent of the contractor's total bid and every work item (activity) shown on the Contract Critical Path Method (CPM) Project Work Schedule. The sum of the cost of all activities in the Schedule of Values shall equal the Contract Amount. Contractor's mobilization, profit, fees, taxes, overhead and General Conditions must be itemized separately and not be prorated across other categories. The Schedule of Values, when approved by State's Representative, shall be used to monitor the progress of the Work and as a basis for payment requests. Each item shall show its total Scheduled Value, value of previous applications, value of the application, percentage completed, total value completed and value yet to be completed. All blanks and columns must be filled in, including every percentage complete figure. Contractor is to add approved Change Orders (Amendments) to the Schedule of Values on a monthly basis.
- B. **Request for Payment** – Contractor shall submit to State an itemized request for payment no more than once each 30 day period for operations completed in accordance with the Schedule of Values. Such request shall be supported by such data substantiating Contractor's right to payment as State's Representative may require, such as copies of requisitions from Subcontractors and material suppliers, and reflect retainage. Any allowance included in the request for payment shall be separately itemized with supporting data attached. Progress payments for mobilization shall not exceed that authorized in Section 10264 of the Public Contract Code. Contractor shall furnish with each request for payment:
 - (1) Cost data to support the application, including without limitation, copies of Subcontractor's pay requests accurately reflecting current percentage of completion on a line-item basis.
 - (2) One (1) certified copy of all payroll records for the month.
 - (3) One (1) electronic copy and three (3) paper copies of the updated Project Work Schedule reflecting the current status of the project.
 - (4) One (1) originally signed Unconditional Waiver and Release Upon Progress Payment for all Subcontractor work paid to date.
- C. **Retention**
 - (1) Ten percent (10%) shall be retained from each progress payment and held by State. After the Punch List has been issued, retainage may be adjusted to five percent (5%) of all amounts billed or two (2) times the value of the Punch List Work, whichever is more, until Final Completion of the Work.
 - (2) Contractor may elect, upon prior notice to State, to retain additional sums, over the ten percent (10%) required, from a Subcontractor. If, however, such additional retainage is made, then an equal amount shall be retained by State from Contractor.
 - (3) Section 10263 of the Public Contract Code pertaining to security deposits in lieu of retentions is incorporated, herein, in full by this reference. Pursuant to that Section, Contractor may, for contracts subject to the State Contract Act, request substitution of eligible securities for such retentions prior to issuance of original contract documents. Contractor hereby agrees to execute said securities using a State-furnished standard excrow agreement.
- D. **Substantial Completion**
 - (1) Substantial Completion is the stage in the progress of the Work when, exclusive of Punch List items, the Work or designated portion thereof (which State agrees to accept and occupy and utilize separately) is sufficiently complete in accordance with the Contract Documents so State can legally and practically occupy and utilize the Work for its intended use, except for Work outside the scope of the Contract Documents.
 - (2) Objections to Certificate of Substantial Completion (DPR 248)/Notice of Completion (DPR 249): Contractor shall have seven (7) Working Days after receipt of the Certificate of Substantial Completion (DPR 248) during which Contractor may make written objection to State as to provisions of the Certificate of Substantial Completion and Punch List. If, after considering such objection, State concludes that the Project is not substantially complete, State shall, within seven (7) days after submission of the objection notify the Contractor thereof in writing stating the reasons. Upon Contractor's completion of the items listed on the Punch List and upon satisfaction of the terms and conditions of the Certificate of Substantial Completion, State shall issue a final

Notice of Completion (DPR 249), which shall fix a date as may be necessary or appropriate. State's determination of the Date of Substantial Completion and other items under this paragraph shall be final and conclusive on Contractor.

E. Partial Occupancy or Beneficial Use

- (1) State and its lessees and separate Contractors may occupy or use any completed or partially completed portion of the Work at any stage of construction regardless of whether the Contract Time has expired (hereinafter sometimes referred to as "Partial Occupancy"). Such Partial Occupancy may commence whether or not the applicable portion of Work is substantially complete.
- (2) It shall be understood, however, that Partial Occupancy shall not: (a) constitute final acceptance of any Work; (b) relieve Contractor for responsibility for loss or damage because of or arising out of defects in, or malfunctioning of, any Work, material, or equipment, or from any other unfulfilled obligations or responsibilities under the Contract Documents; or (c) commence any warranty period under the Contract Documents, provided that Contractor shall not be liable for ordinary wear and tear resulting from such Partial Occupancy.

F. Testing, Inspection, Final Inspection, and Acceptance

- (1) Testing, inspection, and approval of portions of the Work required by the Contract Documents shall be made by an independent Testing Laboratory arranged and paid for by the Contractor and approved by the State. Contractor shall promptly furnish two certified copies of test results and inspection records to the State Representative. Material and equipment shall not be incorporated into the project until test results indicate conformance to the Contract Documents.
- (2) Authorized employees of State shall have access to the Work at all times. Contractor shall give State's Representative forty-eight (48) hours advance notice of what Work and when the Work will be ready for inspection. Contractor shall provide proper facilities for such access and inspection. Inspection of the Work shall not relieve Contractor of any obligations to fulfill the Contract as prescribed. Any Work covered or concealed by Contractor before approval by State's Representative, shall, if required to be uncovered for examination and recovered, be at Contractor's sole expense.
- (3) When the Work is completed, Contractor shall notify State's Representative and shall request final inspection. Within five (5) Calendar Days, State's Representative shall make final inspection. Contractor shall be notified in writing of any deficiencies (Punch List). Contractor shall remedy these deficiencies to complete satisfaction of State. After all the Work under this Contract has been completed and is so certified by State's Representative, formal acceptance will be made in writing by State by filing a Notice of Completion (DPR 249) for recording in the county in which the Work was performed.

1.10 UNCOVERING AND CORRECTION OF WORK

Correction of Work – If, within one (1) year after the date of Final Completion of the entire Work, or within such longer period of time as may be prescribed by laws or in equity or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be defective or otherwise not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written notice from State to do so unless State has previously given Contractor a written acceptance of such condition. Corrective Work shall be warranted to be free from defects for a period equal to the longer of six (6) months after the completion of the corrective Work or one (1) year after the Date of Final Completion or such longer period of time as may be prescribed by law or in equity, or expiration of the term of any applicable special warranty required by the Contract Documents whichever is longer. Any defect in such Work shall be corrected again by Contractor promptly upon written notice of the defect from State. The obligations under Section 1.10 of these General Conditions shall survive acceptance of the Work under the Contract for Construction and termination of the Contract for Construction. If Contractor fails to correct such Work, State may proceed to have the work corrected at Contractor's expense and Contractor shall pay the cost thereof on demand.

1.11 TERMINATION OR SUSPENSION OF THE CONTRACT

A. Termination by Contractor

- (1) Contractor may terminate in writing, the Contract in the manner provided in Section 1.11 of these General Conditions if the Work is entirely stopped for a continuous period of thirty (30) days through no act or fault of Contractor or a Subcontractor, sub-Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with Contractor, for any of the following reasons:
 - a. Issuance of an order of a court or other public authority having jurisdiction.
 - b. An act of government, such as a declaration of national emergency, making material unavailable.

- (2) If one of the above reasons exists, Contractor may, upon fourteen (14) days written notice to State's Representative, terminate the Contract, unless this reason is cured prior to the expiration of the notice period, and recover from State payment for Work properly executed in accordance with the Contract Documents, excluding any anticipated profits from uncompleted Work, and payment for costs directly related to Work thereafter performed by Contractor in terminating such Work, including reasonable demobilization charges, provided said Work is authorized in advance by State's Representative and State.

B. Termination by State

- (1) State may terminate the Contract if State deems any of the following conditions to exist:
- a. Contractor refuses or fails to supply enough properly skilled workers or proper materials or equipment.
 - b. Contractor fails to make prompt payment to Subcontractors for materials or equipment or labor in accordance with the respective agreements between Contractor and Subcontractors.
 - c. Contractor disregards laws, ordinances, or rules, regulations, or orders of a public authority having jurisdiction, including, without limitation, environmental rules and regulations and health and safety codes.
 - d. Contractor disregards the instructions of State's Representative (when such instructions are based on the requirements of the Contract Documents).
 - e. In accordance with applicable law, and if permitted by such law, Contractor is the subject of a voluntary or involuntary petition in bankruptcy, or makes a general assignment for the benefit of Contractor's creditors, or a trustee or receiver is appointed for Contractor or for any of its property, or files a petition to take advantage of any debtor's act, or to reorganize under bankruptcy or similar laws.
 - f. Contractor has all or substantially all of its assets, equipment, or materials in any way connected with the work, executed upon or judicially seized, when such attachment or seizure remains undismissed for seven (7) days after levy thereof.
 - g. Contractor has imposed against it a federal or state tax lien.
 - h. Contractor fails to diligently prosecute the Work and/or correct deficiencies.
 - i. Contractor fails to maintain the proper license to perform the Work prescribed by this Contract.
- (2) When any of the above reasons exist, State may, without prejudice to any other rights or remedies of State and after giving Contractor and Contractor's surety, if any, seven (7) days prior written notice (except in cases of emergency, as reasonably determined by State), terminate the Contract and may:
- a. Take possession of the site and Project and of all materials, equipment, tools, and construction equipment and machinery thereon owned, rented, or leased by Contractor; and
 - b. Finish the Work by whatever method State may deem expedient.
 - c. Tender completion of the Work to Contractor's surety, if any, in accordance with terms of the Performance Bond.
- (3) When State terminates the Contract for one of the reasons stated in Subsection 1.11B(1) of these General Conditions, Contractor shall not be entitled to receive further payment until the Work is finished and a final accounting is completed as to the proper sums due Contractor under the terms of the Contract.
- (4) To the extent the costs of completing Work, including compensation for additional professional services and expenses, exceed those costs which would have been payable to Contractor to complete the Work except for Contractor's default, Contractor will pay the difference to State. This obligation for payment shall survive termination of the Contract. Such costs incurred by State shall be determined by State.

- C. Suspension by State for Convenience** – State may, at any time, at will and without cause, suspend, delay, or interrupt any part of the Work or all the Work for any reason whatsoever for such period of time as State may determine by giving seven (7) days' prior written notice to Contractor specifying the part of the Work to be suspended, delayed, or interrupted and the effective date of such suspension, delay, or interruption, as the case may be. Contractor shall continue to perform the part of the Work not suspended, delayed, or interrupted and shall properly protect and secure the part of the Work so suspended, delayed, or interrupted, so far as is necessary in State's reasonable opinion. Notwithstanding Subsection 1.11B of these General Conditions, if any part of the Work is so suspended, delayed, or interrupted, Contractor shall be entitled to payment of reasonable standby fees (or at State's option, payment

for demobilization) and costs directly associated with protecting and securing the affected Work, provided said costs are authorized in advance by State's Representative. No payment shall be made by State, however, to the extent that such Work is, was, or could have been suspended, delayed, or interrupted under the Contract Documents or an equitable adjustment is made or denied under another provision of the Contract for Construction. In case of such suspension, delay, or interruption, State will issue a Change Order making any required adjustment to the Contract Time and/or the Contract Sum. For the remainder of the Work, the Contract Documents shall remain in full force and effect.

1.12 EMPLOYEES

For each phase and type of Work, Contractor shall employ journey level people skilled in their respective trades and skilled in the use of methods, tools, and appliances developed in order to obtain the highest quality of workmanship throughout the Project. Any person State may deem incompetent or disorderly must be promptly removed by Contractor and not re-employed on the Project.

1.13 PREVAILING WAGE

- A.** The Notice to Contractors stipulates the prevailing wage rates applicable to the classes of labor to be used on this Project.
- B.** Contractor shall abide by the laws and regulations set forth pursuant to California Labor Code, Sections 1720 et seq., and Title 8, California Code of Regulations, Section 16000 et seq.

1.14 TRAVEL AND SUBSISTENCE PAYMENTS

Contractor shall make travel and subsistence payments to each worker needed to execute the Work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Labor Code Section 1773.8.

1.15 APPRENTICES

Special attention is directed to California Labor Code, Sections 1777.5, 1777.6, and 1777.7, and Title 8, California Code of Regulations, Section 200 et seq. Each Contractor and Subcontractor must, prior to commencement of the Public Works Contract, contact the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California, 94102, or one of its branch offices to ensure compliance and complete understanding of the law regarding apprentices and specifically the required ratio thereunder. Responsibility for compliance with this section lies with the prime Contractor. For further information, the website for the Division of Apprenticeship Standards can be accessed at: www.dir.ca.gov.

1.16 SANITARY FACILITIES

Contractor shall provide potable drinking water, and sanitary toilet facilities for Contractor's workers unless the use of existing facilities is authorized by State's Representative. Contractor shall locate temporary facilities as directed by State's Representative and maintain such facilities in good repair and in a sanitary condition. Contractor shall remove such facilities completely at the conclusion of the Work.

1.17 OBSERVANCE OF PARK RULES AND REGULATIONS

The Work to be done is within the jurisdiction of the State Park System. All persons entering the premises for whatever reason are subject to the "Rules and Regulations" for the State Park System, as set forth in Title 14, California Code of Regulations, Division 3, Chapters 1 and 2. Any person who fails to observe these "Rules and Regulations" may be barred from further work in the State Park System.

1.18 RESPONSIBILITY FOR INJURY AND DAMAGE

- A.** Contractor shall be responsible for damage to or loss of property regardless of cause, or for injury or loss of life to persons employed on this Project and to the general public, which arise from operations under this Contract.
- B.** From the formal Start Work Date until formal acceptance of the Work, Contractor is responsible to save from injury and damage by whatever cause all of the Work under this Contract, except as provided in Section 7105 of the Public Contract Code. Contractor shall rebuild, restore, and/or repair any such injury or damage, at Contractor's sole expense, before formal acceptance.
- C.** State is hereby relieved at all times from an indebtedness or claim other than the Contract Sum.

1.19 COOPERATION BETWEEN CONTRACTOR AND STATE

- A.** When the Contract is approved, Contractor will be notified in writing by State of the formal Start Work Date, the Contract completion date, and the name and location of State's Representative responsible for inspection of the Work. Contractor shall start Work within ten (10) Calendar Days of the formal Start Work Date and diligently pursue the Work to completion.

- B.** If Work is suspended for more than three (3) Calendar Days “due to Contractor’s actions” or “due to no fault of State,” Contractor shall immediately inform State’s Representative in writing as to the rescheduling of the Work.
- C.** Contractor shall be responsible for notifying the surety or sureties, furnishing bonds for the Contract, of all changes to the Contract.
- D.** No Work shall be done except on Working Days and during Regular Work Hours unless Contractor has submitted a written request to State’s Representative not less than five (5) Calendar Days in advance of each occurrence and State has given written approval. State may reject, without further reason, any work done in violation of this Subsection.

1.20 PERMITS, LAWS, AND REGULATIONS

- A.** State shall obtain and pay for the permits as indicated in the Project Manual. Contractor is responsible for all other permits. Notwithstanding that State obtains any permits required for the Work, Contractor shall not be relieved of any responsibility for compliance with laws and codes, including without limitation, building codes, pertaining to the Work. Contractor shall pay all public utility usage charges, for utilities consumed during the Work, including any applicable connection charges, which apply to the Work.
- B.** No building permits from city or county governments are necessary for Work on State projects.
- C.** Contractor shall comply with the current edition of Title 24, California Code of Regulations, and the various safety orders and codes of the State of California where applicable.
- D.** All records of Contractor, subcontractors, and suppliers that pertain to the performance of the work or are necessary to determine or verify compensation, including, but not limited to, all documents used to prepare the bid shall be retained for a period of three years after final payment for examination or audit by the State. The State may examine and copy all records including, but not limited to, paper, electronic, and photographic documents.

1.21 STORAGE OF EQUIPMENT AND MATERIALS

- A.** State’s Representative shall inform Contractor of the availability of suitable areas for the storage of Contractor’s equipment and materials. Contractor shall maintain the storage of equipment and materials within the confines of the area designated by State’s Representative.
- B.** Contractor shall store materials intended for use on this Project in such a manner that their quality and fitness for the Work will be preserved. When considered necessary by State, materials shall be stored so as to facilitate inspection. It shall be Contractor’s responsibility to protect those stored items. All stored materials remain the property of the Contractor until such time as they are installed in their final position as intended in the Contract Documents.
- C.** Routes of hauling and parking vehicles and equipment beyond the limits of the existing roads shall be only as directed by State’s Representative.

1.22 SITE CONDITIONS

- A.** State may furnish reports, surveys, or other information describing physical characteristics, legal limitations and utility locations for the Project site, and a legal description of the site. The furnishing of this information is for the convenience of Contractor only and shall not relieve Contractor from its duties under the Contract Documents in general. In performance of the Work, Contractor shall undertake such further investigations and studies as may be necessary or useful to determine subsurface characteristics and patent and concealed conditions. In connection with the foregoing, Contractor shall be solely responsible for locating (and shall locate prior to performing any Work) all utility lines, telephone company lines and cables, sewer lines, water pipes, gas lines, electrical lines, including, without limitation, all buried pipelines and buried telephone cables and shall perform the Work in such a manner so as to avoid damaging any such lines, cables, pipes, and pipelines. Utility points of connection and other site relationships referenced in the contract documents are diagrammatic in nature. The exact location and routing requirements are the responsibility of the Contractor and are subject to the approval of the State’s Representative.
- B.** The Contractor shall visit the Project site and verify all existing conditions prior to preparing its bid, in accordance with Parts 1.01 and 1.02 of Section 00100 Public Works, Instructions to Bidders. No additional compensation will be allowed for any conditions described in the Contract Documents or reasonably anticipated from pre-bid examination and observation of the Project site.
- C. Differing Site Conditions**
 - (1)** During the progress of the Work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract or if unknown physical conditions of an unusual nature, are encountered at the site, Contractor shall promptly notify State in writing of the specific differing conditions before they are disturbed and before the affected Work is performed.

- (2) Upon written notification, State's Representative will investigate the conditions, and if State's Representative determines that the conditions materially differ and cause change in the cost or time required for the performance of any Work under the Contract, an adjustment, excluding loss of anticipated profits, will be made and the Contract modified in writing accordingly. State's Representative will notify Contractor of its determination whether or not an adjustment of the Contract is warranted.

- D. The construction area must be confined to the minimum space needed and be compatible with the ongoing Park Unit operations. The construction area, including all staging and laydown areas, must be approved by the State's Representative.

1.23 WARRANTIES

ALL WARRANTIES SHALL INCLUDE LABOR AND MATERIALS AND SHALL BE SIGNED BY THE MANUFACTURER OR SUBCONTRACTOR AS THE CASE MAY BE AND COUNTERSIGNED BY CONTRACTOR. ALL WARRANTIES SHALL BE ADDRESSED TO STATE AND DELIVERED TO STATE'S REPRESENTATIVE UPON COMPLETION OF THE WORK AND BEFORE OR WITH THE SUBMISSION OF REQUEST FOR FINAL PAYMENT.

1.24 AS-BUILT PLANS

Prior to acceptance, Contractor shall furnish to State's Representative a set of Contract plans in CAD (computer-aided drafting) format unless otherwise directed by State's Representative, clearly and legibly marked showing the location, as constructed, of all elements, features, components, and utilities. The as-built plans shall provide detailed information and reference dimensions locating all concealed elements, features, components, and utilities. Each sheet must be stamped "AS-BUILT", signed and dated by the Contractor.

1.25 PROTECTION OF PERSONS AND PROPERTY

- A. Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes, which apply to any Work performed pursuant to the Contract, including, but not limited to, any air pollution control rules, regulations, ordinances, and statutes, specified in California Government Code, Section 11017.
- B. Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss. Contractor shall provide all facilities and shall follow all procedures required by the Occupational Safety and Health Act (OSHA) including, but not limited to, providing and posting all required posters and notices and shall otherwise be responsible for all other mandatory safety laws.
- C. Contractor shall not impose or permit loading upon any part of the Work, construction, site or upon or adjacent to the Work site, in excess of safe limits, or permit loading that will result in stress or damage to the structural, architectural, mechanical, electrical, or other components of the Work.

D. Hazardous Materials

- (1) Contractor shall not cause or permit any "Hazardous Materials" [as defined in Section 1.27D(2) of these General Conditions] to be brought upon, kept or used in or about the Project site except to the extent such Hazardous Materials: (a) are necessary for the prosecution of the Work; and (b) are required pursuant to the Contract Documents; and (c) have been approved in writing by State. Any Hazardous Materials allowed to be used on the Project site shall be used, stored, and disposed of in compliance with all applicable laws relating to such Hazardous Materials.
- (2) As used herein, the term "Hazardous Materials" means any hazardous or toxic substances, materials or wastes listed in the United States Department of Transportation Hazardous Materials Table, or listed by the Environmental Protection Agency as a hazardous substance, or as defined in the California Health and Safety Code, Section 25316, or any substances, materials or wastes that are or become regulated, identified, defined or listed under federal, state or local law, and all products containing such Hazardous Materials.

- E. **Spread of Exotic Biological Organisms** – Before entering the park unit and at the conclusion of the Contract, all Contractors shall remove soil and organic materials from all motorized equipment used to transport or process soil or organic matter. Contractors shall clean the hull, motor, pumps, and accessories on all watercraft before entering the park unit and at the conclusion of the Contract.

**SECTION 00802
SUPPLEMENTAL CONDITIONS**

Part 1 - GENERAL

- 1.1 The following requirements either amend or supplement following sections:

Section 00700 – General Conditions (DPR 483)
Section 00804 – Disposal of Refuse
Section 01250 – Contract Modification Procedures
Section 01290 – Payment Procedures
Section 01330 – Submittal Procedures
Section 01420 – References
Section 01770 – Closeout Procedures

- 1.2 ADD the following paragraph to Section 00700 – General Conditions (DPR 483), 1.04 Insurance, A. Insurance Requirements, (2) Builder's Risk/Installation Floater:

Builder's Risk Insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, windstorm, false work, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

- 1.3 All testing referred to in the Contract Documents shall be made by an independent testing lab arranged and paid for by the Contractor and approved by the State's Representative.

Part 2 – PRODUCTS (not used)

Part 3 – EXECUTION (not used)

End of Section 00802

SECTION 00803
MINED PRODUCTS AND MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The following requirements supplement the General Conditions, Section 00700.

1.2 RELATED WORK

- A. Related Sections include, but are not limited to, the following:

1. 02300 EARTHWORK
2. 02741 HOT-MIX ASPHALT PAVING
3. 02751 CEMENT CONCRETE PAVEMENT
4. 03300 CAST-IN-PLACE CONCRETE

PART 2 - PRODUCTS

2.1 MINED PRODUCTS AND MATERIALS

- A. In accordance with provisions of Section 10295.5 of the Public Contract Code, no sand, gravel, aggregates, or other minerals produced from a surface mining operation subject to the Surface Mining and Reclamation Act of 1975 (Public Resources Code Section 2710, et. seq.), shall be purchased or utilized in the Work of this Contract, unless the operation is identified in the list published quarterly in the California Regulatory Notice Register pursuant to subdivision (b) of Section 2717 of the Public Resources Code. The list is also available through the State of California, Department of Conservation, Office of Mine Reclamation website at www.consrv.ca.gov/omr (AB 3098 List).

PART 3 – EXECUTION

3.1 CERTIFICATE OF COMPLIANCE

- A. Submit Signed Certificate Indicating:
1. No sand, gravel, aggregates, or other minerals produced from a surface mining operation subject to the Surface Mining and Reclamation Act of 1975 have been purchased or utilized in the Work of this Contract which have come from sites not currently identified in the list published quarterly in the California Regulatory Notice Register pursuant to subdivision (b) of Section 2717 of the Public Resources Code.
 2. Indicate the California Mine Identification Number of each site from which products or materials have been purchased.

END OF SECTION 00803

SECTION 00804
DISPOSAL OF REFUSE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Dispose of waste, debris, and rubbish resulting from the construction of the project.
- B. If excess excavation spoils cannot be suitably disposed of on State property, as directed by the State's Representative, it shall be hauled away at the Contractor's expense.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 REQUIREMENTS

- A. Remove waste materials, debris, and rubbish from site and legally dispose of at public or private dumping areas off State property.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways

END OF SECTION 00804

SECTION 00810

CONSTRAINTS AND MITIGATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The following requirements supplement the General Conditions, Section 00700.

1.2 RELATED REQUIREMENTS

- A. Section 02231 - Water Pollution Control

PART 2 – PRODUCTS (not used)

PART 3 – EXECUTION

3.1 CONSTRAINTS AND MITIGATIONS

- A. In compliance with the environmental review document and environmental permits, the Contractor's operations are subject to the following constraints and environmental protection measures. In addition to these, the Contractor is also responsible for compliance with any and all constraints or environmental protection measures that may be noted in other sections of the Technical Specifications.

- 1. Natural Resources

- Prior to the start of construction, Contractor shall prepare a Water Pollution Control Plan for DPR approval that identifies the Best Management Practices to be used in all construction areas to reduce or eliminate the discharge of soil; sand, surface water runoff; stockpile management; spill prevention from equipment; and dust control during all excavation, grading, and trenching. (See Section 02235)

3.2 SITE CONDITIONS

- A. Coordination with the State's Representative
 - Contractor shall include in the project schedule, consideration of up to 5 calendar days down time for unforeseen conditions uncovered during

monitoring that may require further resource analysis. As such, Resource down time days are approved by the State's Representative.

- Contractor shall notify State's Representative about any proposed project changes, including but not limited to construction site, vehicle access, and equipment staging areas.

END OF SECTION 00810

SECTION 01100 SUMMARY

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Information:

1. Owner: State of California, Department of Parks and Recreation.
2. Park District: San Luis Obispo Coast District
3. Park Unit: Hearst San Simeon State Historic Monument
4. Location: 750 Hearst Castle Road, San Simeon, CA 93452

- B. Refer to Notice to Contractors included in Project Manual for a general description of the work.

1.2 WORK PHASING AND SEQUENCE (Not Used)

1.3 USE OF PROJECT SITE

- A. General: The project site is limited to the areas indicated, and the Contractor shall limit operations to the project site. Contractor shall have full use of project site for construction operations during construction period. Contractor's use of project site is limited only by The State's right to perform work or to retain other contractors on portions of Project or as directed by State's Representative. Rules and regulations for state park systems are found in Title 14 California Code of Regulations, Division 3, Chapters 1 and 2.

1.4 WORK UNDER OTHER CONTRACTS (Not Used)

1.5 FUTURE WORK (Not Used)

1.6 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and

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Summary

plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

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

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01140 WORK RESTRICTIONS

PART 1 - GENERAL

- 1.1 **USE OF PROJECT SITE LIMITS:** Limit operations to work in areas indicated and coordinated in advance of any work with the State's Representative. Do not disturb portions of project site beyond areas indicated. No access of any kind shall be allowed past the park's security gate, on the park road from the Visitor Center to the Castle, or to the Castle, by the Contractor or his workers.
- B. **PARK OPERATIONAL FACILITIES:** The use of the park operational facilities of the State's staff, the State's concessionaires, and the park's visitors shall be maintained at all times during regular work hours.
- C. **STATE OCCUPANCY:** Allow for continuous State occupancy of site and use by the public.
- D. **DRIVEWAYS AND ENTRANCES:** Keep driveways and entrances serving the project site clear and available to the State, the State's employees, State's concessionaires, public access, and emergency vehicles, at all times. Do not use these areas for parking or storage of materials.
- E. **DELIVERIES:** Schedule deliveries as specified to minimize use of driveways and entrances. Schedule deliveries to minimize space and time requirements for storage of materials and equipment.
- F. **USE OF EXISTING FACILITIES:** Maintain existing facilities in a clean, dust free, and weather tight condition and as specified in 3.1. SPECIFIC WORK AREAS AND REQUIREMENTS, throughout construction period. Repair damage caused by construction operations. Protect facilities and occupants during construction period.
- 1.2 **SPECIAL REQUIREMENTS**
- A. **WORKING DAYS:** Regular work days and holidays are as specified in Section 700 - General Conditions.
- B. **REGULAR WORK HOURS:** Regular work hours are as specified in Section 700 - General Conditions.
- C. **SPECIAL EVENTS:** Hearst San Simon SHM has an ongoing and changing special events schedule. The park's special events calendar contains previously scheduled events and additional new events are scheduled in an ongoing manner. All project work and construction activities shall accommodate the park's special events schedule, throughout the construction period.

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Work Restrictions

1. Prior to the commencement of the work the Contractor shall request the most up to date special events calendar, from the State's Representative, and shall incorporate and accommodate any previously and newly scheduled event that may fall within the construction duration.
 2. The Contractor shall request an updated special events calendar on a biweekly basis from the State's Representative. The Contractor shall accommodate the requirements for any newly scheduled work that may be scheduled during the construction period.
 3. Special events and any required accommodations by the Contractor for the events shall be noted in the Specific Work Plans as per paragraph D. SPECIFIC WORK PLANS.
- B. **ADJUSTED WORK HOURS:** Adjusted work hours will be allowed with the prior approval of the State's Representative and as specified in PART 3 - EXECUTION.
1. Adjusted work hours shall be defined as work occurring between the hours of 6:00 PM to 8:00 AM
 2. Adjusted work hours shall only occur on those days where the work schedule has been approved by the State's Representative. All other work shall occur within the regular work hours specified in Section 700 - General Conditions, or as indicated.
 3. The Contractor shall provide, as part of the specific work plan (per paragraph F. SPECIFIC WORK PLANS), the hours to be worked identifying the adjusted hours to be worked for any given specified area of work. The plan shall identify specific days in which adjusted work hours are to be worked, the location of the work to be performed, and the items of work to be completed.
- C. **DELIVERY SCHEDULES:** Generally, all deliveries of materials shall occur during adjusted work hours. The Contractor may, with the prior approval of the State's Representative, accept delivery of materials during regular work hours. The Contractor shall submit a request for delivery during regular work hours to the State's Representative approval, 5 working days prior to the scheduled delivery.
- D. **SPECIFIC WORK PLANS:** Contractor is required to submit an overall project work plan and schedule as required in Section 700 – General Conditions. A Specific Work Plan will be further required for each area of work identified in PART 3 – Execution.
1. Each Specific Work Plan shall require the prior review and approval by the State Representative for the purposes of coordinating security and access

control procedures with the Contractor for both regular and adjusted work hours.

2. The Specific Work Plan shall be submitted to the State's Representative for approval 10 working days in advance of the commencement of the work shown in the specific work plan. Any deviations from the approved plan, shall be reported to the State's Representative for approval, no less than 2 working days prior to the change
3. A Specific Work Plan shall be a complete written and graphic representation of the proposed work, including written descriptions, diagrams, drawings, sections and elevations etc, as required, to illustrate the work to be undertaken. Each Specific Work Plan shall and shall contain the following:
 - a. A demolition plan and schedule for the item of work identified
 - b. A delivery schedule of all materials delivery
 - c. Identify regular working hours and adjusted work hours for the work
 - d. Identify dust abatement measures for all items of work
 - e. Times when excessive noise will occur as per Part 3 – Execution
 - f. The materials and placement of temporary noise abatement and other barriers.
 - g. Identify the type and placement of air scrubbers if required
 - h. Identify the site specific security measures as defined in paragraph F. SECURITY.

E. **NOISE:** Work undertaken that produces high levels of noise shall be restricted during regular work hours.

1. High levels of noise shall be defined as noise that exceeds 75 dB (decibels) measured at 50 feet, for a prolonged period of 10 minutes or more.
2. Not more than a total of one half hour of high level of noise exceeding 75 dB shall be allowed per day, during regular work hours.

F. **SECURITY:** Security of the project site and the individual specific work areas shall be maintained by the Contractor at all times. The Contractor shall provide an overall security plan to the State's Representative and the designated State Parks Ranger at the commencement of construction and shall address individual site security in the specific work plan areas designated in Part 3 – Execution.

1. The security plan shall specify the location, type of work, work schedule, and number of workers on site for that specific area of work.

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2. The State's Representative shall designate a State Parks Ranger on the Park's staff to further coordinate all security arrangements made with the Contractor and as specified, throughout the duration of construction.
3. All plans addressing security shall be submitted to the State's Representative for approval 10 working days prior to the commencement of the work.
4. Security During Regular Work Hours
 - a. The State shall provide security during regular working hours.
 - b. The Contractor shall observe all park rules and security conditions imposed by the State's designated State Parks Ranger during regular working hours.
5. Security During Adjusted Work Hours
 - a. The Contractor shall be responsible to provide additional security during approved adjusted work hours.
 - b. Additional security shall be supplied by the Contractor and shall be an approved licensed private security business. The Contractor shall submit the name and qualifications of the private security business to the State's Representative for approval, as part of the security plan.
 - c. The State's designated State Parks Ranger shall determine the number of security personnel to be provided by the State and shall approve the number of security staff proposed by the Contractor at any given time for adjusted work hours.
 - d. Security during adjusted work hours shall be fully coordinated and approved with the designated State Parks Ranger. The State's designated State Parks Ranger, or his designated staff, shall be on site during all construction activities for during adjusted work hours.
 - e. As a substitute for a private security business, the State may choose to provide the required security for the work with State Park Rangers. This shall be done at the discretion of the State and shall be at the Contractor's expense. Reimbursement to the State shall be determined as part of the security plan.

1.3 OCCUPANCY REQUIREMENTS

- A. **Full State Occupancy:** The State will occupy site and existing facilities, and the parking lot and facilities shall be open to the public during regular working hours for the entire construction period. The Contractor shall fully cooperate with the State during construction operations to minimize conflicts and facilitate State and public use.
- B. **Partial State Occupancy:** The State reserves the right to occupy and to place and install equipment in completed areas of the facility, before Substantial Completion, provided such occupancy does not interfere with completion of the

work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. State Representative will prepare a Certificate of Substantial Completion for each specific portion of the work to be occupied before State occupancy.
2. Before partial State occupancy, mechanical, electrical and other systems shall be fully operational, and required tests and inspections shall be successfully completed.
3. Upon occupancy, the State will provide, operate, and maintain systems serving occupied portions of the facility and will assume responsibility for maintenance and custodial service for occupied portions of the facility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SPECIFIC WORK AREAS AND REQUIREMENTS

- A. **VISITOR CENTER:** All work being undertaken in the interior of the Visitor Center shall adhere to the following work restrictions:

1. **AIR FILTRATION - GENERAL:** The Contractor shall provide a temporary commercial grade portable Air Scrubbers with hepa filtration capability, within the interior spaces of the Visitor Center for the duration of construction. The Contractor shall submit an air filtration plan to the State's Representative for approval 10 working days prior to the commencement of construction in this specific work area.
2. **DUST CONTROL - GENERAL:** Dust control measures are required for all work in the interior areas of the Visitor Center. The Contractor shall submit a dust control plan for each interior space to the State's Representative for approval, prior to the commencement of construction in this specific work area. Dust control measures shall be installed and maintained throughout the duration of this specific construction area, and are the sole responsibility of the Contractor.
 - a. Contractor shall take appropriate measures to prevent dust and construction materials, including vapors and fumes from entering the existing ventilation systems in the facility.
3. **VISITOR CENTER'S TICKET COUNTER:** An individual site specific work plan is required for all work identified for the Visitor Center's ticket counter. The Contractor shall submit a site specific work plan to the State's Representative for approval ten (10) working days prior to the commencement of the work.

Work Restrictions

- a. Adjusted work hours are required for all work associated with the Visitor Center's ticket counter. All work shall take place within the hours of 6:00 PM to 8:00 AM. No work shall be undertaken during regular work hours of 8:00 AM to 6:00 PM without the prior approval of the State's Representative.
 - b. All daily work shall be completed and the Contractor must store materials, clean and vacate the Visitor Center's ticket counter work area by 8:00 AM each working day and shall not start work before 6:00 PM on the following regular working day.
 - c. The construction at the Visitor Center's ticket counter shall be done in three phases. Each phase of the work shall include all of the work required to complete that portion of the Visitor Center's ticket window. Each individual work phase shall consist of the following (see plans):
 - 1) Phase One: The location of the three consecutive existing work stations, on both side and adjacent to, the side walls of the Visitor Center ticket counter.
 - 2) Phase Two: The center three existing work stations (the location of the two future ADA compliant work stations)
 - 3) Phase Three: The remaining 3 consecutive existing work stations
 - d. All work on each individual phase shall be fully completed, cleaned, inspected and approved by the State's Representative prior to the completion of one phase, and the start of the next phase.
 - e. The Visitor Center's ticket counter stations not being worked on and/or those ticket counter work stations completed, shall remain open and fully operational during regular work hours, while phased work is being undertaken, and in full use by the State, throughout the duration of construction.
 - f. During construction on an individual phase, the Contractor shall provide and maintain adequate barriers to isolate the work area and shall maintain the specified noise and dust controls to protect the State's employees and general public. These barriers and controls are to remain in place for the duration of the construction of the individual phases during regular work hours, and shall only be removed with the acceptance of the work and the approval of the State's Representative.
4. VISITOR CENTER'S RESTROOMS: An individual site specific work plan is required for the work identified for the Visitor Center's restrooms. The Contractor shall submit a site specific work plan for the Visitor Center's restrooms to the State's Representative for approval as specified.
- a. Work shall be undertaken during regular work hours of 8:00 AM to 6:00 PM. The Contractor may undertake the work during adjusted

- work hours, as approved by the State's Representative as part of the approved site specific work plan.
- b. All daily work shall be undertaken within the interior of the individual restrooms. If the work is undertaken during adjusted work hours, the Contractor must complete, store materials clean and vacate the area adjacent to the bathroom that is open to the public. Public access through the adjacent halls and to the open restrooms must be maintained during the Visitor Center's regular hours.
 - c. The construction at the Visitor Center's restrooms shall be done in phases with work occurring within one restroom area at a time. Each phase of the work shall include all of the work required to complete all the work specified for that individual restroom. The Contractor shall close the individual restroom undergoing construction to the public for the duration of the work on that restroom.
 - d. A minimum of one Men's and one Woman's restroom must be available to the public during the duration of construction.
 - e. The Visitor Center's restrooms not being worked on and/or those completed, shall remain open and in full use by the State during regular work hours, regular work days and weekend throughout the duration of construction.
 - f. During the duration of construction on an individual restroom, the Contractor shall provide and maintain adequate barriers to isolate the work area and shall maintain the specified noise and dust controls. These barriers and controls are to remain in place for the duration of the construction of the individual restrooms.
 - g. All work on each individual restroom shall be fully inspected, corrections made, and punch list completed, and approved by the State's Representative prior to the commencement of work on subsequent restrooms.
 - h. Noise control for work undertaken during regular work hours shall be as per PART 1, 1.2, E: Noise.
5. RANGER'S OFFICE AREA: An individual site specific work plan is required for the work identified in the Ranger's Office area. The Contractor shall submit a site specific work plan for the Ranger's Office area to the State's Representative for approval.
- a. Work can be undertaken during regular work hours of 8:00 AM to 6:00 PM. The Contractor may undertake the work during adjusted work hours, as approved by the State's Representative as part of the approved site specific work plan.
 - b. The Contractor must complete, store materials, clean and vacate the area at the conclusion of the working day. Employee and Public access through the adjacent halls must be maintained throughout the duration of construction. Access to the Ranger's Office by State Park's Rangers shall be maintained 24 hours a day.

Work Restrictions

- c. The Contractor may close the restroom undergoing construction to the public for the duration of the work on that area.
- d. A minimum of one of the two bathrooms in the area restroom must be open and available to the public and State employees during regular hours.
- e. The Contractor shall provide and maintain adequate barriers to isolate the work area and shall maintain the specified noise and dust controls. These barriers and controls are to remain in place for the duration of the construction.
- f. Noise control for work undertaken during regular work hours shall be as per PART 1, 1.2, E: Noise.

B. BUS LOADING AREA: An individual site specific work plan is required for the work identified for the bus loading area. The Contractor shall submit a site specific work plan for the bus loading area to the State's Representative for approval.

- 1. Work can be undertaken during regular work hours of 8:00 AM to 6:00 PM. The Contractor may undertake the work during adjusted work hours, as approved by the State's Representative as part of the approved site specific work plan.
- 2. Bus traffic in this area and on the adjoining access roads shall remain uninhibited and barrier free at all times. A traffic control plan is required as part of the specific work plan for this area.
- 3. Public access to the adjoining bus loading areas and to the individual tour buses shall remain uninhibited in this area and on the adjoining access roads at all times. A public access and pedestrian circulation plan is required as part of the specific work plan for this area. The plan shall include signs, barriers and labor required to implement the plan.
- 4. Contractor shall provide and maintain adequate barriers to isolate the new accessible bus area from the public. These barriers and controls are to remain in place for the duration of the construction of the new accessible bus area.

C. STATE'S OFFICE FACILITIES: An individual site specific work plan is required for the work identified for the work identified around the State's Office Facilities near the District offices. The Contractor shall submit a site specific work plan for the State's Office Facilities to the State's Representative for approval.

- 1. Work shall be undertaken during the hours specified below. Adjusted work hours shall be identified in the site specific work plan for this area and shall be submitted for approval to the State's Representative.

2. **STATE'S OFFICE FACILITIES EXTERIOR WORK:** Access into the State's Office Facilities by State employees during the hours of 7:00 AM to 5:30 PM and shall be maintained at all times throughout the duration of construction.
 3. Temporary ramps, pathways, etc shall be used to achieve the required access and shall be in place and fully available for employee use during the specified hours. Temporary building access must be in place and fully functional on weekends, holidays or other times when the offices are closed for use by the State Park Rangers or other security personnel, throughout the duration of construction.
 - a. Contractor shall submit as part of the specific work plan for this area addressing the means and methods to be undertaken to facilitate access.
 - b. Noise control in the area of the State's Office Facilities for exterior work shall be as per PART 1, 1.2 SPECIAL REQUIREMENT, E: Noise.
 4. **STATE'S OFFICE FACILITIES INTERIOR WORK:** Interior work shall be undertaken during adjusted work hours between the hours 6:00 PM to 7:00 AM. All work shall be completed prior to State's daily use of the area and the Contractor shall store materials clean and vacate the area at the conclusion of the adjusted work hours. Employee and Public access through the adjacent halls must be maintained during regular office hours.
 - a. The Contractor may close the restroom undergoing construction to the public for the duration of the work on that bathroom. A maximum of one restroom may be closed at any given time during construction in the State's Office Facilities during regular office hours. All other restrooms shall be open and available to the public and employees during regular office hours.
 - b. The Contractor shall provide and maintain adequate barriers to isolate the work area and shall maintain the specified noise and dust controls. These barriers and controls are to remain in place for the duration of the construction.
- D. PARKING AREA AND EXTERIOR PATH OF TRAVEL:** Public access throughout the Parking Area and Exterior Path of Travel during the regular work hours of 8:00 AM to 5:00 PM shall be maintained at all times throughout the duration of construction.
1. Work can be undertaken during regular work hours of 8:00 AM to 6:00 PM. The Contractor may undertake the work during adjusted work hours, as approved by the State's Representative as part of the approved site specific work plan.
 - a. The Contractor may undertake the work during adjusted work hours with the approval of the State's Representative. Adjusted work hours

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shall be identified in the site specific work plan and shall be submitted for approval to the State's Representative.

- b. Vehicle circulation and access to parking shall be maintained and remain uninhibited and barrier free during regular hours. A traffic control plan is required as part of the specific work plan for this area.
- c. Pedestrian access into the Visitor Center must be maintained and clearly marked during regular hours. Temporary ramps, pathways, etc shall be used to achieve the required access.
- d. The Contractor shall submit as part of the specific work plan, a vehicle and pedestrian control plan for this area, addressing the means and methods to be undertaken to facilitate access.

3.2 WORK RESTRICTION SUBMITTALS: The work restrictions for construction require site specific work plans be written by the Contractor and submitted to the State's Representative for approval. Work plans shall be as per PART 2, 1.2 SPECIAL REQUIREMENTS, D. The following work plans submittals are required;

- A. **SECURITY PLAN:** As specified.
- B. **VISITOR CENTER:** As specified. The site specific plan for this area also includes plans for the following:
 - 1. Ticket Counter Construction Phasing Plan
 - 2. Restroom Construction Phasing Plan
 - 3. Air Filtration Plan
 - 4. Dust Control Plan
- C. **RANGERS OFFICE AREA:** As specified.
- D. **BUS LOADING AREA:** As specified. The site specific plan for this area also includes plans for the following:
 - 1. Traffic Control Plan
 - 2. A Public Access and Pedestrian Circulation Plan
- E. **STATE'S OFFICE FACILITIES:** As specified. The site specific plan for this area also includes plans for the following:
 - 1. Building Access Plan
- F. **PARKING AREA AND EXTERIOR PATH OF TRAVEL:** As specified. The site specific plan for this area also includes plans for the following:
 - 1. Pedestrian and Traffic Control Plan

END OF SECTION 01140

SECTION 01250 CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications. The terms "Change Order", "Contract Modification", and "Amendment" are synonymous.

1.2 MINOR CHANGES IN THE WORK

- A. State Representative will issue Bulletins, defined as supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.3 PROPOSED CHANGE ORDER (PCO)

- A. State-Initiated Requests: State Representative will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. PCOs issued by State Representative are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 15 days after receipt of a PCO, submit a change proposal indicating all cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity durations, start and finish times, and activity relationships. Use available total float before requesting an extension of the Contract Time.

- B. Contractor - Change Order Request (COR) - : Contractor may propose changes by submitting a Change Order Request (COR).

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed

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- change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.4 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 3. Submit substantiation of a change in scope of work, if any, claimed in Change Order proposals related to unit-cost allowances.
 4. State reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit requests for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit request within 10 days of receipt of the Contract Field Order (CFO) authorizing work to proceed on the allowance. The State has the option to reject requests submitted later than 10 days after such authorization.
 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order proposal cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CONTRACT FIELD ORDER (CFO)

- A. Contract Field Order: The State may issue a Contract Field Order (CFO). A CFO instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Contract Amendment.
 - 1. A CFO contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

1.6 CHANGE ORDER (CONTRACT AMENDMENT)

- A. Submit a letter of authority indicating the Contractor's authorized representative for negotiation of cost and time adjustments, and the limits of their authority. On State's approval of a Contractor's Change Proposal, State will issue a Contract Amendment for signatures of State and Contractor.

PART 2 - PART2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01250

SECTION 01290 PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

- A. General: Submit Schedule of Values in accordance with GENERAL CONDITIONS.
- B. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with the project CPM Schedule.
 - 2. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 - 2. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 - 3. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 4. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 5. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - 6. Each item in the Schedule of Values and Applications for Payment shall be complete..

Payment Procedures

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
7. Provide separate line items for profit, fees, taxes, overhead, and General Conditions.
8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Contract Field Orders result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be sequentially numbered and consistent with previous applications and payments as certified by the State Representative and paid for by the State.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Transmittal: Submit three (3) signed or original copies of each Application for Payment to the State.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- C. Administrative Items: Administrative actions, submittals, and update submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Submittals Schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. Copies of required permits.
 7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
- D. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificates of Partial Substantial Completion issued previously for State occupancy of designated portions of the Work.
- E. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. Project Record Documents (As-Builts).
 5. Operation and Maintenance (O & M) Manuals.
 6. Warranties.
 7. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when the State took possession of and assumed responsibility for corresponding elements of the Work.

END OF SECTION 01290

SECTION 01330 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires the Designer's responsive action.
- B. Informational Submittals: Written information that does not require the Designer's approval. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. The State Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Six copies of each submittal must be transmitted to the State Representative within 15 days of Notice To Proceed.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on the Designer's receipt of submittal.
 - 1. Initial Review: Allow 20 working days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The State will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Allow 15 working days for processing each resubmittal.

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Submittal Procedures

4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by the State.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Contractor.
 - d. Name and address of subcontractor.
 - e. Name and address of supplier.
 - f. Name of manufacturer.
 - g. Unique sequential identifier, including revision number.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - j. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify in a manner acceptable to the State any deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless the Designer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Number each submittal sequentially and date each submittal. The State Representative will return submittals, without review, from sources other than Contractor.
1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 2. Transmittal Form: Use form approved by the State Representative.
- H. Use for Construction: Use only final submittals with mark indicating action taken by the State in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
1. Number of Copies: Submit six copies of each submittal, unless otherwise indicated. The State Representative will return two copies. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with recognized trade association standards.
 - i. Compliance with recognized testing agency standards.
- C. Shop Drawings: Submit Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.

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2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least **8-1/2 by 11 inches** but no larger than **30 by 40 inches**.
- D. Samples: Submit physical units of materials or products, including the following:
1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. The State Representative will return submittal with options selected.
 2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Submit three (3) sets of Samples. The State will retain **two** Sample sets; remainder will be returned.
 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Submit Samples to match the State's sample where so indicated. Attach label on unexposed side.
 4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual components delivered and installed.
 5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- E. Product Schedule or List: Submit a written summary indicating types of products required for the Work and their intended location.
- F. Application for Payment: Comply with requirements in Division 1 Section 01290 "Payment Procedures."

- G. Schedule of Values: Comply with requirements in Section 00700 General Conditions.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit six (6) copies of each submittal, unless otherwise indicated. The State Representative will return two (2) copies.
 2. Certificates and Certifications: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- B. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements.
- C. Welding Certificates: Submit written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- D. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- E. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- F. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements.
- G. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- H. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- I. Field Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

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- J. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- K. Research/Evaluation Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- L. Maintenance Data: Submit written and graphic instructions and procedures for operation and normal maintenance of products and equipment.
- M. Design Data: Submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- N. Manufacturer's Instructions: Submit written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- O. Manufacturer's Field Reports: Submit written information documenting factory-authorized service representative's tests and inspections.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the State.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 DESIGNER'S ACTION

- A. General: The Designer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- B. Action Submittals: The Designer will review each submittal, make marks to indicate corrections or modifications required, and return it. The Designer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken:
- C. Informational Submittals: The Designer will review each submittal and will return it, or will reject and return it if it does not comply with requirements. The State Representative will forward each submittal to appropriate party.

END OF SECTION 01330

SECTION 01400 QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Contractor shall arrange and pay for a qualified independent testing agency to perform all required testing for the Project. Test reports shall be submitted to the State's Representative within forty-eight (48) hours.
- C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's quality-control efforts as necessary to provide compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-control services required by the State, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions before, during and after execution of the Work to evaluate that completed construction complies with requirements. Quality Control Services do not include contract enforcement activities performed by the State or Designer of Record.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

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1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to the State's Representative.

1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- C. Contractor's Daily Quality Control Reports: The Contractor shall designate an individual responsible for maintaining control over the quality of the work. For each day on which work is scheduled to be performed, the Contractor's Quality Control Representative shall prepare and submit certified written reports that include the following:
 1. Date of report preparation and date work was performed.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples, tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work performed that day, and reasons for non-work.
 7. Item of work tested or inspected. Test and inspection methods.
 8. Identification of products delivered/installed and corresponding Specification Sections.
 9. Complete test or inspection data.
 10. Test and inspection results and an interpretation of test results.
 11. Weather conditions. Ambient conditions at time of sample taking, testing and inspecting.
 12. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 13. Name and signature of Quality Control Representative, and laboratory inspector.
 14. Recommendations on retesting and reinspecting.
- D. Permits, Licenses, and Certificates: For the State's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence,

records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

- A. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. **Specialists:** Certain sections of the Specifications may require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
- G. **Testing Agency Qualifications:** An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

1.6 QUALITY CONTROL

- A. **Contractor Responsibilities:** The Contractor is solely responsible for controlling the work to comply with the Contract Documents. Unless otherwise indicated,

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provide quality-control services specified and required by authorities having jurisdiction.

1. Where testing or inspection services are indicated, engage a qualified testing agency to perform these quality-control services.
 2. Notify the State Representative, State's testing agencies, Inspector of Record, and Contractor's testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Testing or inspection services are the Contractor's responsibility; submit a certified written report, in duplicate, of each testing or inspection service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Special Tests and Inspections: The Contractor will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction.
1. Testing agency will notify the State's Representative and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to the State's Representative with copy to Contractor and to authorities having jurisdiction.
 3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 5. Testing agency will retest and reinspect corrected work.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with the State's Representative and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify the State and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 5. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- B. Protect construction exposed by or for quality-control service activities.

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- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

SECTION 01420 REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": Approved by the State.
- C. "Directed": A command or instruction by the State Representative. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- J. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

References

- K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.
- L. "Submit": Deliver information in the specified format to the State for the State's review and approval.

1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the State for a decision before proceeding.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to the State for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.
- E. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list:

ADAAG Americans with Disabilities Act (ADA)

CFR Code of Federal Regulations

CRD	Handbook for Concrete and Cement
DOD	Department of Defense Specifications and Standards
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AAN	American Association of Nurserymen (See ANLA)
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABMA	American Bearing Manufacturers Association
ACI	American Concrete Institute/ACI International
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies, Inc. (The)

References

AFPA	American Forest & Paper Association (See AF&PA)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALA	American Laminators Association (See LMA)
ALCA	Associated Landscape Contractors of America
ALSC	American Lumber Standard Committee
AMCA	Air Movement and Control Association International, Inc.
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen)
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts
APA	APA - The Engineered Wood Association
APA	Architectural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ASCA	Architectural Spray Coaters Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWCI	AWCI International (Association of the Wall and Ceiling Industries International)
AWCMA	American Window Covering Manufacturers Association (See WCMA)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
CCC	Carpet Cushion Council
CCFSS	Center for Cold-Formed Steel Structures
CDA	Copper Development Association Inc.
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CGSB	Canadian General Standards Board
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association

References

	(Formerly: National Particleboard Association)
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry Association
EIMA	EIFS Industry Members Association
EJMA	Expansion Joint Manufacturers Association, Inc.
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association (See GANA)
FM	Factory Mutual System (See FMG)
FMG	FM Global (Formerly: FM - Factory Mutual System)
GA	Gypsum Association
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association)
GRI	Geosynthetic Research Institute
GTA	Glass Tempering Division of Glass Association of North America (See GANA)
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (See NAAMM)
HPVA	Hardwood Plywood & Veneer Association

HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (See CSA International)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute (The)
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
ILI	Indiana Limestone Institute of America, Inc.
IRI	Industrial Risk Insurers
ITS	Intertek Testing Services
IWS	Insect Screening Weavers Association (Now defunct)
KCMA	Kitchen Cabinet Manufacturers Association
LGSI	Light Gage Structural Institute
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association)
LPI	Lightning Protection Institute
LSGA	Laminated Safety Glass Association (See GANA)
MBMA	Metal Building Manufacturers Association
MCA	Metal Construction Association
MFMA	Maple Flooring Manufacturers Association
MFMA	Metal Framing Manufacturers Association
MGPHO	Medical Gas Professional Healthcare Organization, Inc.
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)

References

MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NAAMM	North American Association of Mirror Manufacturers (See GANA)
NACE	NACE International (National Association of Corrosion Engineers International)
NAIMA	North American Insulation Manufacturers Association (The)
NAMI	National Accreditation and Management Institute, Inc.
NAPM	National Association of Photographic Manufacturers (See PIMA)
NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable Television Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	National Oak Flooring Manufacturers Association
NPA	National Particleboard Association (See CPA)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association

NSA	National Stone Association
NSF	NSF International (National Sanitation Foundation International)
NTMA	National Terrazzo and Mosaic Association, Inc.
NWWDA	National Wood Window and Door Association (See WDMA)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting and Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM - National Association of Photographic Manufacturers)
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
RMA	Rubber Manufacturers Association
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SGCC	Safety Glazing Certification Council
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)

References

SPI	The Society of the Plastics Industry
SPIB	Southern Pine Inspection Bureau (The)
SPI/SPFD	The Society of the Plastics Industry Spray Polyurethane Foam Division (See SPFA)
SPRI	SPRI (Single Ply Roofing Institute)
SSINA	Specialty Steel Industry of North America
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association)
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, and Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TPI	Truss Plate Institute
TPI	Turfgrass Producers International
UFAC	Upholstered Furniture Action Council
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USITT	United States Institute for Theatre Technology, Inc.
USP	U.S. Pharmacopeia
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Formerly: AWCMA - American Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WIC	Woodwork Institute of California

WMMPA Wood Moulding & Millwork Producers Association

WWPA Western Wood Products Association

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

ICC International Code Council
(Formerly: CABO - Council of American Building Officials)

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

CE Army Corps of Engineers

CPSC Consumer Product Safety Commission

DOC Department of Commerce

EPA Environmental Protection Agency

FAA Federal Aviation Administration

FCC Federal Communications Commission

FDA Food and Drug Administration

GSA General Services Administration

HUD Department of Housing and Urban Development

LBL Lawrence Berkeley Laboratory (See LBNL)

LBNL Lawrence Berkeley National Laboratory

NCHRP National Cooperative Highway Research Program (See TRB)

References

NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
RUS	Rural Utilities Service (See USDA)
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

- E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

CALTRANS	State of California, Department of Transportation
CAPUC	(See CPUC)
CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CPUC	California Public Utilities Commission
DGS	State of California, Department of General Services
DPR	State of California, Department of Parks and Recreation
TFS	Texas Forest Service Forest Products Laboratory

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Contractor may elect to provide a temporary construction office and utilities. The following requirements apply if these facilities are to be provided.
- C. Site is subject to continual public use. Facilities shall be safe and secure at all times.

1.2 DEFINITIONS

- A. Permanent Enclosure: As determined by the State, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.3 TEMPORARY UTILITIES

- A. General: Cost or use charges for temporary facilities are not chargeable to the State and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the State's construction forces, testing and inspecting agencies and personnel of authorities having jurisdiction.
- B. Water Service: Use water from the State's existing water system without metering and without payment of use charges. Paragraphs above and below assume services are available and Owner will permit tapping into existing system without charge.
- C. Electric Power Service: Use electric power from the State's existing system without metering and without payment of use charges.

1.4 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

1.5 QUALITY ASSURANCE

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Temporary Facilities and Controls

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections : Arrange for authorities having jurisdiction to test and inspect each temporary utility before use . Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Temporary Utilities: At earliest feasible time, when acceptable to the State, change over from use of temporary service to use of permanent service.
 - 1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before the State's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved. Provide materials suitable for use intended.
- B. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts as directed.
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.

2.2 EQUIPMENT

- A. Field Offices: Prefabricated, mobile units, with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.
- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
 - 1. Comply with Title 19 CCR, Division 1, Chapter 3; and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
 - 1. Arrange with utility company, the State, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Provide minimum 48 hours advance written notice.
 - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to Project site where the State's easements cannot be used for that purpose.

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Temporary Facilities and Controls

- B. Water Service: Use of the State's existing water service facilities may be permitted, at the direction of the State's Representative, as long as facilities are cleaned and maintained in a condition acceptable to the State. At Substantial Completion, restore these facilities to condition existing before initial use.
 - 1. Provide rubber hoses as necessary to serve Project site.
 - 2. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
- D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- E. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
 - 1. Install power distribution wiring overhead and rise vertically where least exposed to damage.
- F. Electric Power Service: Use of the State's existing electric power service may be permitted, at the direction of the State's Representative, as long as equipment is maintained in a condition acceptable to the State.
- G. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
 - 1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated or as directed. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
 - 1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.
 - 2. Prepare temporary signs to provide directional information to construction personnel and visitors.
- B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section 01700 "Execution Requirements" for progress cleaning requirements.
 - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
 - 2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains. Provide stormwater control in accordance with Contractor's approved Stormwater Pollution Prevention Plan.
- C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.
- D. Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest-control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial

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Completion. Obtain extended warranty for the State. Perform construction operations lawfully, using environmentally safe materials.

- E. Site Enclosure Fence: Before construction operations begin install enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.
 - 1. Set portable chain-link fence posts in concrete or galvanized steel bases.
 - 2. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
 - 3. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide the State with one set of keys.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - 2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
 - 3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
 - 4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
- G. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Provide fire extinguishers visible and accessible from space being served.
 - a. Locate fire extinguishers where convenient and effective for their intended purpose.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
 - 4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

5. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire agencies having jurisdiction and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
6. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
 1. Maintain operation of temporary enclosures, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are the property of Contractor. The State reserves right to take possession of Project identification signs.
 2. At Substantial Completion, clean and renovate permanent facilities used during construction period.

END OF SECTION 01500

SECTION 01575 CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This section specifies diversion of construction debris from the landfill.
 - 1. Waste Management Goals: a minimum of 75% of the total project waste should be diverted from landfill by, in order of preference 1) weight, 2) volume, whichever is most feasible to measure.
 - 2. Provide a construction waste management plan, a construction waste estimate and a final waste management report to show evidence of recycling, and reuse of recovered materials.
 - 3. Inform the State's Representative where Construction Waste Management requirements could detrimentally impact construction schedule.
- B. Waste Management Objective for the Project:
 - 1. The State has established that this Project shall minimize the generation of construction and demolition waste at the site. Factors that contribute to waste, such as over-packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination shall be minimized.
 - 2. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused or recycled. Waste disposal in landfills shall be minimized.
- C. Diversion From Landfill: Waste categories appropriate for diversion from landfill shall include, but not be limited to, the following:
 - 1. Land clearing debris
 - 2. Soil
 - 3. Wood: Clean dimensional wood, palette wood
 - 4. Sheet Wood: Plywood, OSB and particle board
 - 5. Concrete
 - 6. Bricks
 - 7. Concrete Masonry Units (CMU)
 - 8. Asphalt Concrete
 - 9. Paper
 - a. Bond
 - b. Newsprint
 - c. Cardboard and paper packaging materials

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10. Cement Fiber Products: Shingles, panels, and siding
11. Metals
 - a. Ferrous
 - b. Non-Ferrous
12. Paint
13. Rigid Foam
14. Glass
15. Plastics
16. Carpet and pad
17. Beverage Containers
18. Insulation
19. Gypsum Board
20. Porcelain Plumbing Fixtures
21. Florescent Light Tubes (per Department of Toxic Substances Control regulations)

1.2 RELATED REQUIREMENTS

- A. Appendix 01575A: Construction Waste Estimate.
- B. Appendix 01575B: Waste Management Report.
- C. Section 01330: Submittal Procedures.
- D. Section 01770: Closeout Procedures.

1.3 REFERENCES

- A. The California Integrated Waste Management Board (CIWMB); including the California Materials Exchange (CalMAX), Telephone 877-520-9703; www.ciwmb.ca.gov/calmax/. This provides a source of information, statewide, to buy and sell recycled materials.
- B. Local Integrated Waste Management Programs and Re-Use Programs in the Project area.
- C. The Department of Toxic Substances Control (DTSC).

1.4 CONSTRUCTION WASTE SUMMARY REPORTS

Provide delivery receipts for the recovered materials and waste materials sent to the permitted recycling facilities, processing facilities, or landfill with the following information:

1. Name of firm accepting the recovered materials or waste materials

2. Specify type of facility (e.g. recycler, processor, Class III landfill, MRF)
3. Location of the facility
4. Type of materials
5. Net weights (or volume) of each type of material
6. Date of Delivery
7. Value of the materials or tipping fee paid

1.5 APPLICATION FOR PROGRESS PAYMENT

The following should be submitted with the Application for Progress Payment:

1. Construction Waste Summary Reports as stated above in section “1.4 CONSTRUCTION WASTE SUMMARY REPORTS”.
2. Payment could be withheld until diversion goals are met. The contractor is ultimately responsible for implementation of the Construction Waste Management Plan and achieving the diversion goals.

1.6 DEFINITIONS

- A. Class III Landfill – A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.
- B. Construction and Demolition Waste – Including solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair, and demolition operations.
 1. Rubbish: Including both combustible and noncombustible wastes, such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, and bones.
 2. Debris: Including both combustible and noncombustible wastes, such as leaves and tree trimmings that result from construction or maintenance and repair work.
- C. Divert – Using material for any purpose other than disposal in a landfill or transformation facility.
- D. Waste Materials – Large and small pieces of listed materials which are excess to contract requirements and generally include materials to be recycled and/or recovered from existing construction and items of trimmings, cuttings, and damaged goods resulting from new installations, which can be effectively used in the Work.
- E. Reuse – Using a material or product that is recovered from construction, renovation, or demolition activities.

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- F. Recycling – The process of collecting and preparing recycle materials and reusing them in their original form or manufacturing processes that do not cause the destruction of recyclable materials in a manner that precludes further use.
- G. Recovery – Any process that reclaims materials, substances, energy, or other products contained within or derived from waste on-site.
- H. Sources Separation – Sorting recovered materials into specific material types with no or a minimum amount of contamination on site.
- I. Commingled or Off-site Separation – Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types in an off-site facility.

1.7 SUBMITTALS

- A. Construction Waste Management Plan, Construction Waste Estimate
Before the start of construction, submit a construction waste management plan and a construction waste estimate for approval, including the following:
 - 1. Indicate how the Contractor proposes to recover at least 75% of the construction wastes and debris for reuse and recycling.
 - 2. The Construction Waste Management Plan should coordinate the recovery effort with the construction schedule.
 - 3. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving the recovered recyclable materials.
 - 4. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations) and explain why the materials are not recovered.
 - 5. List the permitted landfill, or other permitted disposal facilities, that will be accepting the disposed waste materials.
 - 6. Indicate instances or situations where compliance with the requirements of this specification do not apply or do not appear to be possible.
 - 7. Prepare the Construction Waste Estimate identifying each type of waste material to be reused or recycled.

1.8 WASTE MANAGEMENT REPORT

- A. Upon completion of Work including final cleanup, provide a final Waste Management Report containing the information required on Appendix 01575B, Waste Management Report forms.
 - 1. The total quantity of each waste material generated; and the date(s) removed from the job-site.

2. The percent of the total quantity generated of each material sent to landfill, the identity of the landfill (receiving facility) handling costs, transport costs, tipping fees paid at the landfill, and total landfill costs. Attach copies of manifests, weight tickets, receipts, and invoices.
 3. For each material reused or recycled from the Project, include the percent of the total quantity generated, the identity of the receiving facility, the total costs of handling and transportation, and income. Attach manifests, weight tickets, receipts, and/or invoices.
 4. Contractor shall edit and use forms included in Appendix 01575B, Waste Management Report, or use them as a basis for Contractor's forms.
 5. The State will provide electronic copies of Appendix 01575B for Contractors' use.
- B. Submit Waste Management Report under provisions of Section 01770 – "Closeout Procedures".

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT

- A. Manager: Contractor shall designate an on-site party (or parties) responsible for instructing workers and subcontractors, and overseeing and documenting results of Waste Management for the Project.
- B. Distribution: Contractor shall distribute copies of the Construction Waste Estimate and Waste Management Report forms to the Job Site Foreman, each Subcontractor, and the State's Representative.
- C. Meetings: Contractor shall conduct Waste Management meetings with subcontractors who generate construction waste. Contractor shall present current status of the Waste Management Report at regular job-site meetings.
- D. Material Handling Procedures: Provide means by which waste materials will be protected from contamination, and means to be employed in reuse or recycling of waste material consistent with requirements for acceptance by receiving facilities.
 1. Separation Facilities: Contractor shall lay out and label a specific area to facilitate separation of materials for reuse and recycling. Recycling and waste bin areas shall be kept neat and clean and clearly marked in order to avoid contamination of materials.

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Construction Waste Management

2. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations, and in accordance with specifications for such work as may be included in the Project.
3. Instruction: Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at appropriate stages of the Project.

END OF SECTION 01575

CONSTRUCTION WASTE ESTIMATE

DATE: _____

Waste Material (Edit to Suit)	Unit	Estimated Quantity Generated	Percent to Landfill	Percent Reused	Percent Recycled
Land Clearing Debris	CY				
Soil	CY				
Wood	CY				
Sheet Wood	CY				
Concrete	CY				
Bricks	CY				
Concrete Masonry Units	CY				
Asphalt Concrete	CY				
Paper	CY				
Cement Fiber Products	CY				
Metal (ferrous)	TON				
Metals (non-ferrous)	LBS				
Paint	GAL				
Rigid Foam	CF				
Glass	CF				
Plastics	CF				
Carpet and Pad	SY				
Beverage Containers	LBS				
Insulation	CF				
Gypsum Board	CF				
Porcelain Plumbing Fixtures	EA				
Fluorescent Light Tubes	EA				

WASTE MANAGEMENT REPORT COST / INCOME

Waste Material (Edit to Suit)	Unit	Receiving Facility	Landfill Cost			Reused		Recycled	
			Handling	Transport	Fee	Cost	Income	Cost	Income
Land Clearing Debris	CY								
Soil	CY								
Wood	CY								
Sheet Wood	CY								
Concrete	CY								
Bricks	CY								
Concrete Masonry Units	CY								
Asphalt Concrete	CY								
Paper	CY								
Cement Fiber Products	CY								
Metal (ferrous)	TON								
Metals (non-ferrous)	LBS								
Paint	GAL								
Rigid Foam	CF								
Glass	CF								
Plastics	CF								
Carpet and Pad	SY								
Beverage Containers	LBS								
Insulation	CF								
Gypsum Board	CF								
Porcelain Plumbing Fixtures	EA								
Fluorescent Light Tubes	EA								
TOTALS:									

SECTION 01700 EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.

1.2 SUBMITTALS

- A. Certificates: Submit certificate signed by either a land surveyor or a professional engineer certifying that location and elevation of improvements comply with requirements.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- C. Certified Surveys: Submit two copies signed by the land surveyor or professional engineer.
- D. Record of Survey: Submit three copies showing the Work performed and record survey data.

1.3 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before

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Execution Requirements

beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
1. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicant or present work here indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to the State regarding existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by the State or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify the State not less than two days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without the State's written permission.
- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions

of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to the State's Representative. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents, on a Request for Information form. (RFI)]

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify the State promptly.
- B. General: Engage a licensed land surveyor or professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify the State when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and

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Execution Requirements

types of instruments and tapes used. Make the log available for reference by the State.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Record of Survey: Where a Record of Survey is specified, Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by licensed land surveyor—or professional engineer licensed to practice surveying—that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the State.
 - 2. Allow for building movement, including thermal expansion and contraction.
- F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 90 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

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- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- I. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01700

SECTION 01731 CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.

1.2 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 3. Products: List products to be used and firms or entities that will perform the Work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
 6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
 7. The State's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
1. Main water service feed.
- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity,

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Cutting and Patching

that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the State's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.4 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.

- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, by pass such services before cutting to avoid interruption of services to occupied areas.

3.3 PERFORM ANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

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Cutting and Patching

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

END OF SECTION 01731

SECTION 01732 SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes demolition and removal of the following:
 - 1. Selected portions of a building or structure.
 - 2. Selected site elements.
 - 3. Repair procedures for selective demolition operations.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to the State.
- C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the State's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
- B. Predemolition Photographs or Videotape: Document existing conditions of adjoining construction and site improvements adjacent to demolition operations. Submit photographs and/or videotapes taken in the presence of the State's Representative. Submit before Work begins.
- C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

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Selective Demolition

1.5 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Predemolition Conference: Conduct conference at Project site. Review predemolition condition documentation.

1.6 PROJECT CONDITIONS

- A. The State will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so the State's operations will not be disrupted. Provide not less than 72 hours' notice to the State of activities that will affect the State's operations.
- B. Maintain safe access to existing walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. The State assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by the State as far as practical.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify the State Representative.
- E. Storage or sale of removed items or materials on-site will not be permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the State.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by the State and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the State and to authorities having jurisdiction.

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Selective Demolition

1. Provide at least 48 hours' written notice to the State if shutdown of service is required during changeover.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
1. Arrange to shut off indicated utilities with utility companies.
 2. If utility services are required to be removed, relocated, or abandoned, provide temporary utilities before proceeding with selective demolition that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- D. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from the State and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 2. Erect temporary protection, such as walls, fences, railings, canopies, and covered passageways, where required by the State.
 3. Protect existing site improvements, appurtenances, and landscaping to remain.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations.
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch portable fire-suppression devices during flame-cutting operations.
 - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to the State.
 - 4. Transport items to the State's storage area on-site.
 - 5. Protect items from damage during transport and storage.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the State, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section 01731 "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.

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Selective Demolition

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off the State's property and legally dispose of them.

END OF SECTION 01732

SECTION 01770 CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
 2. Project Record Documents.
 3. Operation and maintenance manuals.
 4. Warranties.
 5. Instruction of the State's personnel.
 6. Final cleaning.

1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Make final changeover of permanent locks and deliver keys to the State. Advise the State's personnel of changeover in security provisions.
 3. Complete startup testing of systems. Submit test reports.
 4. Submit test/adjust/balance records.
 5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 6. Advise the State of changeover in heat and other utilities.
 7. Submit changeover information related to the State's occupancy, use, operation, and maintenance.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, the State will either proceed with inspection or notify Contractor of unfulfilled requirements. The State will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by the State, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

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Closeout Procedures

1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 1 Section 01290 "Payment Procedures."
 2. Submit one copy of the State's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by the State. The copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 5. Deliver tools, spare parts, extra materials, and similar items to location designated by the State. Label with manufacturer's name and model number where applicable.
 6. Submit pest-control final inspection report and warranty.
 7. Instruct the State's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 8. Complete final cleaning requirements, including touchup painting.
 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, the State will either proceed with inspection or notify Contractor of unfulfilled requirements. The State will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit one copy of punch list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 PROJECT RECORD DOCUMENTS (AS-BUILTS)

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for the State's reference during normal working hours.
- B. Provide Project Record Documents in accordance with the General Conditions.

1.6 OPERATION AND MAINTENANCE MANUALS

- A. Assemble two (2) complete sets of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
 - 1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.
 - 2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.7 WARRANTIES

- A. Submittal Time: Submit written warranties on request of the State for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

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- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct the State's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with the State, with at least seven days' advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline.
 - 1. Include instruction for system design and operational philosophy, review of documentation, operations, adjustments, troubleshooting, maintenance, and repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom-clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - l. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Replace parts subject to unusual operating conditions.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed

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by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

q. Leave Project clean and ready for occupancy.

- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the State's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

SECTION 02230 SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Protecting existing trees and vegetation to remain.
 - 2. Trimming trees and other vegetation.
 - 3. Clearing and grubbing.
 - 4. Topsoil stripping.
 - 5. Removing above-grade site improvements.

1.2 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled or to remain the State's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.3 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store at location indicated by the State's Representative..

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: As specified in Division 2 Section 02300 "Earthwork."
 - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.

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Site Clearing

1. Restore damaged improvements to their original condition, as acceptable to State Parks.

3.2 TREE PROTECTION

- A. Refer to Division 2; section 02231 "Tree Protection".

3.3 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
- B. Do not interrupt utilities serving facilities occupied by the State or others unless permitted. Arrange to provide temporary utility services.

3.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

- A. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
- B. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

3.7 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off State's property.

END OF SECTION 02230

SECTION 02231 TREE PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the protection of existing trees in the project area.

1.2 REQUIREMENTS

- A. Arborist Qualifications: An arborist certified by the International Society of Arboriculture or licensed in jurisdiction where the Project is located.
- B. Tree Pruning Standards: Comply with ANSI A300, "Trees, Shrubs, and Other Woody Plant Maintenance - Standard Practices."

1.3 DEFINITIONS

- A. DBH – Diameter at Breast Height of tree, or 54-inches from ground level, measured on the high side of the tree.
- B. TPZ - Tree Protection Zone, a distance of 5 times the DBH from the tree trunk, or at the tree drip line, whichever is greater.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Construction Fence: Fencing around trees and planted areas to be protected from construction damage shall consist of 36-inches minimum height plastic orange color temporary construction fencing as manufactured by White Cap or approved equal. Posts may be steel driven type, or self-supporting type, as per plans or directions of the State's Representative.

PART 3 - EXECUTION

3.1 PREPARATION

- A. The Contractor shall meet on site with the State's Representative to review all required protection measures.

Tree Protection

- B. The Contractor shall locate and clearly flag trees to be protected, as shown on the construction documents or as directed by the State's Representative.
- C. The Contractor and State's Representative shall review all protected trees whose root zones may be impacted by the new construction. When working within the TPZ is unavoidable and approved by the State's Representative, tree trunk protection shall be installed. The Contractor shall install the tree trunk protection measures as outlined in Part 3 of this Section.
- D. The State's Representative shall designate trees to be protected during the project pre-construction meeting, including those that may not have been designated on the project construction plans. Designated protection assignment is not limited to only the project construction meeting. The Contractor shall utilize protection measures as outlined in Part 3 of this Section.
- E. The Contractor is prohibited from storing or stockpiling material, parking and vehicular traffic, as determined by the State's Representative, within the TPZ of trees.
- F. The Contractor shall avoid flooding, eroding or excessive moisture within the TPZ.

3.2 TREE PROTECTION

- A. The Contractor shall protect all trees within the designated construction area from damage by fencing the TPZ of individual, or groups of, trees with construction fencing.
- B. All trees that have approved construction activities occurring within the TPZ of the tree trunk shall be protected using this tree trunk protection measure. Tree trunk and root protection shall consist of a wood guard that is constructed from 2"x 6" x 8' pieces of lumber that are placed at 12-inch on center and then attached vertically around the entire trunk of the tree using 3-inch wide nylon straps. Lumber shall extend to the natural base of the tree and must protect any exposed roots.
- C. No fill shall be placed against the trunks of protected trees.
- D. No fill shall be placed within the TPZ, unless approved by the State's Representative.
- E. Where excavation for new construction is approved within the TPZ, the Contractor shall locate the root zone and do one or more of the following:
 - 1. Hand clear to prevent root damage, in a manner approved by the State's Representative.
 - 2. Tunnel below the roots.

3. Directional I drill beneath the roots.

3.3 TREE PRUNING

- A. No pruning shall be conducted unless approved by the State's Representative and as directed by a certified arborist.

3.4 TREE REPAIR

- A. In the event that a tree is damaged during construction operations, the damaged limb, trunk or root shall be treated within 24 hours in a manner approved by the State Representative's and as directed by a certified arborist.

3.5 DISPOSAL

- A. The Contractor shall remove excess excavated material, displaced trees, and excess chips from State Park's property. Burning shall not be permitted.

3.6 TREE DAMAGE PENALTY

- A. If any tree, not designated for removal, is damaged or destroyed during the course of, as a result of, construction operations, the Contractor shall repair the damage, if possible, under the guidance of a certified arborist at no additional cost to the State. In addition, the Contractor shall pay the State an amount calculated in accordance with the formulas below. Damage is defined, without limitation, as any cutting, breaking, tearing, bruising or skinning of the trunk, roots or significant limbs.

1. The total tree value shall be paid to the State for a tree totally destroyed.

a. Total Tree Value = $\$2.16 \times (\text{Trunk circumference in inches at DBH})^2$.

b. Example: 24-inch Diameter Pine

Circumference = 75.4 inches

$\$2.16 \times (75.4)^2 = \$12,280$

Total Tree Value \$12,280

2. A proportional amount of the total tree value shall be paid to the State, for each tree damaged, based upon the amount of damage to the trunk and roots. Total trunk and root damage shall not exceed a factor of 1.0.

a. Damage = Total Tree Value x (Trunk Damage Factor + Root Damage Factor)

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Tree Protection

- b. Trunk Damage = Maximum width of trunk damage divided by trunk circumference.
- c. Root Damage = Percentage of root damage based on size of root damaged. Percentages will be added for multiple roots damaged within the root zone of one tree. Assumed root zone for all trees is a 20-foot diameter or 314 square feet. The following table determines percentage of overall root damage based on size of root damaged.

Root size (inches)	Equivalent Percent of Root Zone	Damage Factor
2 to 3	10	0.1
4 to 5	20	0.2
6 and larger	30	0.3

- d. Example: 24 inch diameter Pine with 6-inch wide trunk damage and with one 2-inch root and one 4-inch root damaged.

Trunk damage: $6 \div 75.4 = 0.08$

Root damage: $0.1 + 0.2 = 0.3$

Damage \$ = $\$12,280 \times (0.08 + 0.3)$

Total Damage \$4,666

- 3. Total amount of such damages shall be deducted from any funds due, or that become due to the Contractor. All destroyed trees shall remain the property of the State. At no additional cost to the State, the Contractor shall remove destroyed trees from State Park property if directed by the State's Representative.

END OF SECTION 02231

SECTION 02300 EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades.
 - 2. Excavating and backfilling.
 - 3. Drainage course for slabs-on-grade.
 - 4. Subbase course for concrete walks and pavements.
 - 5. Base course for asphalt paving.

1.2 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.
- B. Base Course: Layer placed between the subbase course and asphalt paving.
- C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Additional Excavation: Excavation below subgrade elevations as directed by State's Representative. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by the State's Representative. Unauthorized excavation, as well as remedial work directed by the State's Representative, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Native Soil: Soil excavated on site, which can be used as fill or backfill, if specified in plans and specifications.

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- I. Select Fill: Native soil that has been screened to remove rocks and deleterious organic material, which may be used for fill or backfill if specified in plans or specifications.
- J. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.
- K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

1.3 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the State or others unless permitted in writing by the State's Representative and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 1-1/2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
- D. Backfill and Fill: Satisfactory soil materials.
- E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- F. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; meeting the requirements of Class 2, 3/4" maximum size, in accordance with Section 26 of the Standard Specifications of California, Department of Transportation. Provide load tickets to the State's Representative at the time of delivery.

- G. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, freezing temperatures or frost, and other hazards created by earthwork operations. Provide protective insulating materials as necessary.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Prevent surface water and groundwater from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- D. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
- E. Prior to excavation or trenching, existing surface shall be removed to saw cut lines. Saw cut shall be a neat, straight line one inch minimum depth.

3.2 EXCAVATION

- A. Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- B. Excavate for structures, pavements, and walks to indicated elevations and dimensions. Extend excavations for placing and removing concrete formwork, for installing services and other construction, and for inspections. Trim bottoms to required lines and grades to leave solid base to receive other work.

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Earthwork

- C. Proof roll subgrades, before filling or placing aggregate courses, with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities.
- E. Stockpile borrow materials and satisfactory soil materials, without intermixing, in shaped, graded, drained, and covered stockpiles. Stockpile soil materials away from edge of excavations and outside drip line of remaining trees.

3.3 BACKFILLS AND FILLS

- A. Fill: Place and compact fill material in layers to required elevations.
- B. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 - 1. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
- C. Compaction: Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- D. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
 - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.
- E. Grading: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Grade lawns, walks, and unpaved subgrades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch.
- F. Subbase and Base Course s: Under pavements and walks, place subbase course on prepared subgrade. Place base course material over subbase. Compact to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

- G. Under slabs-on-grade, place drainage course on prepared subgrade. Compact to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports. Each specific area shall be tested: (RV Parking/ DO Parking/ Bus Drop off area)
- B. Allow testing agency to test and inspect subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.5 PROTECTION AND DISPOSAL

- A. Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
- D. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off State Park property.

END OF SECTION 02300

SECTION 02741 HOT-MIX ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes hot-mix asphalt paving, patching, paving overlay, AC dikes and pavement markings.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: Certification, by State's Representative, of approval of each job mix proposed for the work.
- C. Material certificates of compliance for each type of asphalt binder indicated.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The Contractor shall furnish asphalt in conformance with Caltrans' "Certification Program for Suppliers of Asphalt." Caltrans maintains the program requirements, procedures, and a list of approved suppliers at:

<http://www.dot.ca.gov/hq/esc/Translab/fpmcoc.htm>
- B. The Contractor shall prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or damp or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature of 50 deg F.
 - 2. Asphalt Concrete: Minimum surface temperature of 50 deg at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of

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Hot-Mix Asphalt Paving

40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Aggregates shall conform to the ½-inch maximum, medium grading, Type A, specified in Section 39-2.02 of the Caltrans Standard Specification.

2.2 ASPHALT MATERIALS

- A. Supply the type of asphalt binder for the following applications:
1. For hot-mix asphalt paving, patching, paving overlay: **PG 64-10**
 2. For AC dikes: PG 70-10.
- B. Asphalt Binder shall conform to the following:

Property	AASHTO TEST METHOD	PG 64-10	PG 64-16	PG 64-28	PG 70-10
ORIGINAL BINDER					
Flash Point Minimum °C	T48	230	230	230	230
Solubility Minimum %	T44	99	99	99	99
Viscosity @ 135°C Maximum, Pa·s	T316	3.0	3.0	3.0	3.0
Dynamic Shear, Test Temp at 10 rads/s, °C Min G*/sin (delta), kPa	T315	64 1.00	64 1.00	64 1.00	70 1.00
RTFO Test Mass Loss, Max, %	T240	1.00	1.00	1.00	1.00
RTFO TEST AGED BINDER					

Dynamic Shear Test Temp at 10 rads/s, °C Min G	T315	64 2.20	64 2.20	64 2.20	70 2.20
Ductility @ 25 °C Min, cm	T51	75	75	75	75
PAV Aging, Temp °C	R28	100	100	100	110
RTFO TEST AND PAV AGED BINDER					
Dynamic Shear Test Temp at 10 rads/s, °C Min G	T315	31 5000	28 5000	22 5000	34 5000
Creep Stiffness Test Temp, °C Max S-value, MPa Max M-Value	T313	0 300 0.300	-6 300 0.300	-18 300 0.300	0 300 0.300

2.3 AUXILIARY MATERIALS

- A. Pavement-Marking Paint: Latex, water borne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, with drying time of less than 45 minutes.

2.4 MIXES

- A. Hot-Mix Asphalt: Asphalt concrete shall be produced at a central mixing plant in conformance with Section 39- 3 of the Caltrans Standard Specifications.

PART 3 - EXECUTION

3.1 COLD MILLING

- A. Where shown on the plans, clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to a depth of 1-1/2 inches or grades and/or cross sections indicated.

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Hot-Mix Asphalt Paving

3.2 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch a minimum of one-inch in depth and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd..
- C. Patching: Fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.

3.3 SURFACE PREPARATION

- A. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- B. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
 - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd..
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillage and clean affected surfaces.

3.4 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Spread mix at minimum temperature of 250 deg F (121 deg C).
 - 2. 3" AC new surface maximum.

3. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips one half of the roadway width but not less than 10 feet wide unless infill edge strips of a lesser width are required.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 COMPACT ION

- A. General: Begin compaction as soon as placed hot-mix paving will be at roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- F. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

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Hot-Mix Asphalt Paving

3.6 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/2 inch.
 - 2. Surface Course: Plus 1/4 inch, no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch
 - 2. Surface Course: 1/8 inch

3.7 PAVEMENT MARKING

- A. General: Pavement marking shall include new in-kind striping for all existing and/or new pavement or at locations shown on the plans or striping that will be removed or covered due to new improvements.
- B. Do not apply pavement-marking paint until layout, colors, and placement have been verified with State Representative.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of equal dimension of existing, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.
 - 1. Broadcast glass spheres uniformly into wet pavement markings at a rate of 6 lb/gal..
- E. Do not apply the pavement marking until the paved areas have had a chance to cure. Verify with pavement marking manufacturer for duration required.

3.8 WHEEL STOPS

- A. Securely attach wheel stops in to pavement with not less than two galvanized steel dowels embedded at one-quarter to one-third points. Securely install dowels into pavement and bond to wheel stop. Recess head of dowel beneath top of wheel stop.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor shall engage in a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.10 DISPOSAL

- A. Disposal of debris in accordance with Section 00804.

END OF SECTION 02741

SECTION 02751 CEMENT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes cement concrete pavement for the following applications:
 - 1. Walkways.
 - 2. Curbs and gutters.
 - 3. Parking Areas.

1.2 SUBMITTALS

- A. Product Data: For each manufactured material and product indicated.
- B. Design Mixes: For each concrete mix indicated.
- C. Material certificates.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
- B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

- A. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed, epoxy coated.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening steel reinforcement. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II.
 - 1. Fly Ash: ASTM C 618, Class F or C.
 - 2. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Aggregate: ASTM C 33, uniformly graded, from a single source.

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Cement Concrete Pavement

- C. Water: ASTM C 94.
- D. Synthetic Fiber: Fibrillated or monofilament polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inch long.
- E. Admixtures: Certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures, as follows:
 - 1. Air-Entraining Admixture: ASTM C 260.
 - 2. Water-Reducing Admixture: ASTM C 494, Type A.
 - 3. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
 - 4. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
 - 5. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
- F. Curing Materials:
 - 1. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
 - 2. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
 - 3. Water: Potable.
 - 4. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 5. Clear Solvent-Borne Liquid-Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
 - 6. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- G. Related Materials:
 - 1. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.
 - 2. Coloring Agent: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.

2.3 CONCRETE MIXES AND MIXING

- A. Concrete Mixes: Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, with the following properties:
 - 1. Compressive Strength (28 Days): 3000 psi.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 4 inches.
 - 4. Air Content: 4.5 to 7.5 percent.

- B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd.
- C. Coloring Agent: Add coloring agent to mix according to manufacturer's written instructions.
- D. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94 and ASTM C 1116.
- E. Project-Site Mixing: Comply with requirements and measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Surface Preparation: Proof-roll prepared subbase, and remove loose material from surface.
- B. Forms: Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations.
- C. Reinforcement: Accurately position and support reinforcement, and secure against displacement. Set wire ties with ends directed into concrete.
- D. Joints: Locate and install construction, isolation, contraction, and expansion joints as indicated.
- E. Concrete Placement: Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete. Place concrete in a continuous operation within planned joints or sections.
 - 1. Moisten subbase to provide a uniform dampened condition at time concrete is placed.
 - 2. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping according to recommendations in ACI 309R.
 - 3. Screed and initial-float concrete surfaces with darby or bull float before excess moisture or bleed water appears on the surface.
 - 4. Protect concrete from cold or hot weather during mixing, placing, and curing.
- F. Evaporation Retarder: Apply to 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.

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Cement Concrete Pavement

- G. Pavement Tolerances: Comply with tolerances in ACI 330.1, "Specification for Plain Concrete Parking Lots."

3.2 FINISHES AND CURING

- A. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surfaces to true planes with gaps below 10-foot long, unleveled straightedge not to exceed 1/4 inch. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
 - 2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
 - 3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.
- B. Curing: Begin curing after finishing concrete, but not before free water has disappeared from concrete surface. Cure concrete by one or a combination of the following methods:
 - 1. Moisture cure concrete by water, continuous fog spray, continuously wet absorptive cover, or by moisture-retaining-cover curing. Keep surfaces continuously moist for not less than seven days.
 - 2. 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.

3.3 TESTING

- A. Testing shall be done and meet the requirements shown under Cast-In-Place Concrete, Section 03300, 3.6.

3.4 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.
- B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.
- C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751

SECTION 02870
SITE FURNISHINGS and ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Benches
2. Truncated Domes

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Samples: For each type of exposed finish and for each color and texture required.

1. Provide white cement color for benches to match existing to be reviewed by State's Representative prior to installation.

C. Maintenance data.

D. Manufacturer's Installation guidelines.

E. Warranties

1.3 QUALITY ASSURANCE

A. Regulatory Requirement: Provide tactile warning surfacing that comply with the requirements for detectable warnings in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Title 24 of the California Code of Regulations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products and manufacturer's specified.

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Site and Street Furnishings

2.2 MATERIALS

- A. Anchors, Fasteners, Fittings, and Hardware: Commercial quality; tamperproof, vandal and theft resistant ; concealed, recessed, and capped or plugged. Provide as required for site and street furnishings' assembly, mounting, and secure attachment.
 - 1. Material Galvanized steel or Manufacturer's standard, corrosion-resistant-coated or noncorrodible materials.
 - 2. Angle Anchors: For inconspicuously bolting legs of site and street furnishings to on-grade substrate.
 - 3. Antitheft Hold-Down Brackets: For securing site and street furnishings to substrate.

2.3 BENCHES

- A. Benches as shown on the drawings.
 - 1. Product: Accessible Outdoor Creations P.O. Box 50, Round Mountain, CA 96084, 530-337-6774.
 - 2. Product: Accessible Universal Precast Concrete Inc., P.O. Box 6431296, San Jose, CA 95153-1296, 408-799-8888,.
 - 3. Product: Dura Art Stone, 1785 Locust Street, #11, Pasadena, CA 91106, 626-577-6000.
 - 4. Or equivalent.
- B. Thickness: Minimum thickness of all areas to be 4 inches.
- C. Weight: Minimum 2,450 lbs.
- D. Installation Method: Freestanding.
- E. Color: Pure mineral oxides mixed integrally with cement. Color to match existing outdoor benches, provide sample for review.
- F. Concrete Mix Design: 8.5 sacks White cement per yard with maximum rock size of ¾" reinforced with #4 and #5 rebar grid, fabricated so that a continuous connection is made between table tops and seats and table legs. Rebar frame set a minimum of 2 inches from outside edges. Cured concrete shall attain minimum compressive strength of 7,000 psi at 28 days.
- G. Finish: manufacturer applied clear concrete graffiti-resistance sealer to all exposed surfaces. All formed surfaces and edges shall be fully rounded and smooth.

- H. Warranty: Ten-year vandal-proof guarantee that will replace the benches in the event of destructive vandalism.

2.4 TRUNCATED DOMES

A. Manufacturer:

- 1. As manufactured by TekWay Dome – Tiles, StrongGo Industries LLC, 3296 E. Hemisphere Loop, Tucson, AZ 85706, 866-439-3216.

- 2. Or equivalent

B. Composition of High Slip-Resistant Tiles: Polymer concrete mix with blended aggregates having a textured, non-skid surface.

- 1. Compressive Strength: Greater than 11,700 psi (ASTM C 39).
- 2. Tensile Strength: Greater than 2,300 psi (ASTM C 496)
- 3. Flexural Strength: Molded surface in tension, ASTM C 947.
 - a. Yield Strength: Greater than 1,900 psi.
 - b. Ultimate Strength: Greater than 2,900 psi.
- 4. Freeze-Thaw Durability: No change per ASTM C 1262.
- 5. Static Coefficient of Friction: 0.99, ASTM C 1028.

C. Warranty: Manufacturer's standard 5 year warranty in which manufacturer agrees to replace tactile warning surface tiles that fail in materials or workmanship within the specified warranty period.

D. Truncated Dome Spacing: 1.67 inches @ diagonal and 2.35 inches in x and y direction.

E. Tile Size: Provide 24 x 36 inch tiles, or as required by ADAAG (T-24) at locations shown on the documents.

F. Color: Custom color to match existing site Tile.

PART 3 - EXECUTION

3.1 HANDLING

- A. Transport, store and handle precast units and manufactured items in a manner to avoid damage. Store units free of the ground. Cover unit, secure cover firmly, and protect units from staining materials.

3.2 INSTALLATION

- A. Complete field assembly of site and street furnishings, where required.
- B. Set all work true and square, plumb and level.

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Site and Street Furnishings

- C. Unless otherwise indicated, install site and street furnishings after planting and paving have been completed.

D. Truncated Domes:

1. Truncated dome warning panels shall be Contrasting color and surface mounted, as manufactured by TekWay, Inc. or approved equal. Panels shall be mechanically fastened and adhered to the underlying surface using 1/4" x 5/8" composite sleeve anchors with SS pins. Sealant is Sonneborn NP1, Sikaflex 1a, or approved equal.
2. Install domes on 4" thick concrete slabs (minimum), sloped to meet the ADA ramp grades as diagrammed on the documents. Install plumb, true and securely anchored positioned.

3.3 CLEAN UP

- A. Clean up per section 01700.

END OF SECTION 02870

SECTION 03300 CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes cast-in-place concrete, including reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. See Division 2 Section 02300 "Earthwork" for drainage fill under slabs-on-grade.

1.2 SUBMITTALS

- A. Product Data: For each manufactured material and product indicated.
- B. Design Mixes: For each concrete mix indicated.
- C. Material certificates (transit mix delivery slips) for concrete certifying contents of each pour, delivered on site to the State's Representative.
- D. Material test reports.
- E. Shop Drawings: Include details of steel reinforcement placement including material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
- B. Comply with ACI 301, "Specification for Structural Concrete," including the following, unless modified by the requirements of the Contract Documents.
 - 1. General requirements, including submittals, quality assurance, acceptance of structure, and protection of in-place concrete.
 - 2. Formwork and form accessories.
 - 3. Steel reinforcement and supports.
 - 4. Concrete mixtures.
 - 5. Handling, placing, and constructing concrete.
- C. Comply with the current approved edition of the California Code of Regulations, Title 24, California Building Code.

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Cast-In-Place Concrete

- D. Current approved edition of the State of California, Department of Transportation, "Standard Specifications."

1.4 NOTIFICATION

- A. Notify the State's Representative at least 72 hours (3 working Days) prior to the placing of concrete.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Formwork: Furnish formwork and form accessories according to ACI 301.

- B. Steel Reinforcement:

1. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 deformed.
2. Reinforcing steel within the building to have prefabricated fusion bonded epoxy coating. Fletchmarkote, 3M Company: Scotchkote: 213,214, and 215, or equal. Meet ASTM Standards

- C. Concrete Materials:

1. Portland Cement: ASTM C 150, Type I or II.
2. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 1-1/2-inch nominal size.
3. Water: Complying with ASTM C 94.

- D. Admixtures:

1. Air-Entraining Admixture: ASTM C 260.

- E. Vapor Retarder: Multi-ply reinforced polyethylene sheet, ASTM E 1745, Class C, not less than 7.8 mils thick; or polyethylene sheet, ASTM D 4397, not less than 10 mils thick in sheets as wide as possible to minimize joints.

1. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a No. 4 sieve and 10 to 30 percent passing a No. 100 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

- F. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

- G. Curing Materials:

1. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

2. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf.
3. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
4. Water: Potable.
5. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

2.2 CONCRETE MIXES

- A. Comply with ACI 301 requirements for concrete mixtures.
- B. Prepare design mixes, proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data bases, as follows:
 1. Compressive Strength (28 Days): 3000 psi.
 2. Slump: 4 inches.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 2.5 to 4.5 percent. [6.0 percent within a tolerance of plus 1.0 or minus 1.5 percent].
 1. Air content of trowel-finished interior concrete floors shall not exceed 3.0 percent.

2.3 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with ASTM C 94 and ASTM C 1116.
 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: 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.
- C. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Formwork: Design, construct, erect, shore, brace, and maintain formwork according to ACI 301.
- B. Vapor Retarder: Install, protect, and repair vapor-retarder sheets according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.
 - 1. Lap joints 6 inches and seal with manufacturer's recommended tape.
 - 2. Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.
- C. Steel Reinforcement: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- D. Joints: Construct joints true to line with faces perpendicular to surface plane of concrete.
 - 1. Construction Joints: Locate and install so as not to impair strength or appearance of concrete, at locations indicated.
 - 2. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - a. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 - 3. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
 - a. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 - b. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or

otherwise damage surface and before concrete develops random contraction cracks.

- E. Tolerances: Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials." In addition, make all concrete slabs even and uniform in appearance, and where no slope is required, level within plus or minus 1/8 inch in 10 feet when tested with a 10 foot straightedge. Grind smooth to fill all surface defects which would show through as a surface defect on an floor covering system.

3.2 CONCRETE PLACEMENT

- A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- B. Do not add water to concrete during delivery, at Project site, or during placement.

3.3 Consolidate concrete with mechanical vibrating equipment.FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. 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.

3.4 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.
 - 1. Do not further disturb surfaces before starting finishing operations.
- C. Scratch Finish: Apply scratch finish to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, and other bonded cementitious floor finish, unless otherwise indicated.

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- D. Float Finish: Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied waterproofing, if indicated.
- E. Trowel Finish: Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with thin film-finish sealant coating.
- F. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and pipe space floor. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
- G. Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.

3.5 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions occur 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.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Cure formed and unformed concrete for at least seven days as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist with water absorptive cover, water saturated and kept continuously wet.
 - 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. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 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.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor shall engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Tests will be performed according to ACI 301.
1. Testing Frequency: A minimum of at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
 2. The contractor, shall provide two test cylinders for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

END OF SECTION 03300

SECTION 06100 ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Wood framing.
2. Wood supports.
3. Wood blocking.
4. Wood nailers.
5. Wood furring.
6. Wood sheathing.
7. Plywood backing panels.
8. Plywood adhesive.
9. Sealer.
10. Wood polymer decking.

1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product indicated.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that materials comply with requirements.
- B. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses.
- C. Research/Evaluation Reports for the following: Wood Polymer Decking

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. For exposed lumber indicated to receive stained or natural finish, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by grading agency.
 3. Provide dressed lumber, S4S, unless otherwise indicated.
 4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

Rough Carpentry

B. Wood Protection:

1. Store all lumber, trim and sheathing per industry standards to allow for ventilation and prevent warping and twisting. All wood products exposed to the weather shall be covered prior to any rain extending beyond three days or more than 4 rain days within 1 week. All wood shall be dry before installation. No previously installed lumber, trim, or sheathing shall be covered prior to wood returning to 19 percent.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: All WPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX). Pressure treatment for exposed pressure treated douglas firs shall be with Ammoniacal Copper Quaternary preservative. This pressure treatment shall not include incisor marks on the wood and shall conform to AWPA Standard LP-22 for ground contact. Non-Pressure preservative shall be ammoniacal copper arsenite, conforming to AWPA Standard LP-22: Chromonite, J.H. Baxter, or acceptable equal.
- B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
- C. Mark each treated item with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
 1. Wood sills, sleepers, blocking, flooring, stripping, and similar concealed members in contact with masonry or concrete.
 2. Wood framing members less than 24 inches above grade.
 3. Wood floor plates that are installed over concrete slabs directly in contact with earth.

2.3 DIMENSION LUMBER

- A. General: Of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.
- B. Exposed Framing: Hand select material for uniformity of appearance and freedom from characteristics that would impair finish appearance.
 1. Species and Grade: Douglas fir-larch, Douglas fir-larch (north), or Douglas fir (south); No. 1 grade; NLGA, WCLIB, or WWSA.
- C. Concealed Framing and Pipe Space:

1. Species and Grade: Douglas fir-larch, Douglas fir-larch (north), or Douglas fir (south); No. 2 grade; NLGA, WCLIB, or WWP.

2.4 TIMBER AND MISCELLANEOUS LUMBER

- A. For timbers of 5-inch nominal size and thicker, provide material complying with the following requirements:
 1. Species and Grade: Douglas fir-larch, Douglas fir-larch (north), or Douglas fir (south); Select Structural or No. 1 grade; NLGA, WCLIB, or WWP.
- B. Provide miscellaneous lumber for support or attachment of other construction, including the following:
 1. Rooftop equipment bases and support curbs.
 2. Blocking.
 3. Nailers.
 4. Furring.
- C. For items of dimension lumber size, provide No. 1 grade Douglas Fir or Redwood (heartwood) lumber with 19 percent maximum moisture content.
- D. For concealed boards, provide lumber with 19 percent maximum moisture content for No. 2 grade Douglas Fir-larch (north), Douglas Fir (south).

2.5 MISCELLANEOUS MATERIALS

- A. Fasteners:
 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners of Type 304 stainless steel. In locations not compatible with materials use hot-dip zinc coating complying with ASTM A 153/A 153M.
 2. Power-Driven Fasteners: CABOT-B272.
 3. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- B. Metal Framing Anchors: Made from, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
 1. Manufacturers:
 - a. KC Metals Products, Inc.
 - b. Silver Metal Products, Inc.
 - c. Simpson Strong-Tie Company, Inc.
 - d. United Steel Products Company, Inc.

Rough Carpentry

2. Research/Evaluation Reports: Provide products acceptable to the State's Representative for which code research/evaluation reports exist that show compliance of metal framing anchors, for application indicated, with current approved edition of the California Building Code in effect for Project.
 3. Allowable Design Loads: Meet or exceed those indicated per manufacturer's published values determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- C. Building Paper (roof): Asphalt-saturated organic felt complying with ASTM D 226, Type I (No. 30 asphalt felt), unperforated.
- D. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1 -inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.
- E. Adhesives for Field Gluing Panels to Framing: Formulation complying with ASTM D 3498 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.

2.6 WOOD POLYMER DECKING

- A. Wood-polymer composite decking material.
- B. Size 2 x 6 and as shown on the drawings.
- C. Color: Natural
- D. Manufacturers:
1. Trex, Mobil chemical Company, Composite Products Division
 2. TimberTech Wood Composites.
 3. Fiber Composites LLC, Fiberon.
 4. Epic Plastics Bella Rosso Composites.
 5. Weather Best Decking
 6. or equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All installation to meet minimum requirements of the current approved edition of the California Building Code.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope

as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

- C. Sealing Treatment: Apply field treatment complying with AW-PA M4 to cut surfaces of preservative-treated lumber and plywood. Seal ends of beams 4" nominal or thicker with two coats of sealer. Seal ends of plywood which will be exposed to weather with three coats of sealer.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. CABO NER-272 for power-driven fasteners.
 - 2. Published requirements of metal framing anchor manufacturer.
 - 3. "Nailing Schedule," and "Wood Structural Panel Roof Sheathing Nailing Schedule," in the current approved California Building Code.
- E. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
- F. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated. Do not notch, bore, or cut members for pipes, ducts, conduits, or other reasons except as specifically approved in advance by the State's Representative. Provide furring as needed to accommodate and/or conceal the various components and equipment of Mechanical, Electrical, Plumbing, and Systems of other Sections of Work.
- G. Blocking: Install all blocking as required by current approved edition of the California Building Code and as required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas. Install 2 x blocking at all intersections and edges of finished surfaces for bearing, and at all points where required to support fixtures, hardware flashings, and equipment of any other trade. Blocking to receive fixtures shall be secured to framing with steel clips.
- H. Alignment: Unless noted otherwise in drawings, on all walls to receive a finished wall or ceiling, align the finish subsurface to vary not more than 1/8 inch from the plane of surfaces or adjacent framing and furring members.
- I. Crowns: Set all horizontal or sloped members crown up.
- J. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- K. Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.

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Rough Carpentry

- L. Nailing: Do all nailing without splitting wood, preboring as required; replace all split members. In diaphragms, the minimum penetration shall be 1 1/2 inch for 8d nails and 1 5/8" for 10d nails. For conditions not covered in drawings, provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike provided, however, that 16d nails may be used to connect two pieces of two inch (nominal) thickness.
- M. Bolts: Drill holes 1/16 inch larger in diameter than the bolts being used: drill straight and true from one side only. Bolt threads must not bear on wood.
- N. Screws: Anchorage embedment in piece lagged to shall not be less than 6/10 screw length nor less than 8 times the screw diameter. For lag-screws and wood screws, prebore holes and with a maximum diameter root of thread; enlarge holes to shank diameter for length of shank.
- O. Washers: Provide washers under heads and nuts of all bolts and screws. Washers for bolts in shear shall have a net area of not less than 16 times the area of bolt or lag screw, and shall be of steel not less in thickness than 1/10 the length of the washer's longest side. Washers shall have bearing surface for the nut or head which is not less than or equal in diameter to the long diameter of the nut or head.
- P. Joist Hangers: Joist and beams at same level shall be connected with metal framing devices, "U" type, excepted as noted.
- Q. Plywood: Place all plywood with face grain perpendicular to supports and continuously over at least two supports. Center joints accurately over supports. Stagger the end joints of panels to achieve a minimum of joints. Nail all panel edges to framing members or blocking at least 1 1/2 inches thick. Place nails not less than 3/8" from panel edges and driven solidly into support. Protect all plywood from moisture by use of all required waterproof coverings until the plywood has in turn been covered with the next succeeding component of finish. Fastening Methods:
 - 1. Plywood Sheathing: Nail to wood framing.
 - 2. Plywood Backing Panels: Nail or screw to supports.
- R. Protection: Protect lumber from rain and ground moisture prior to finish coat or encapsulation by other material. Store lumber and plywood per NLGA, WCLIB, or WWPA standards to prevent warping of members and allow for ventilation and acclimation to existing humidity. No damp or wet wood products are to be permanently covered. All wood must be dry prior to encapsulation.
- S. Apply building paper horizontally with 2-inch overlap and 6-inch end lap; fasten to sheathing with galvanized staples or roofing nails. Cover upstanding flashing with 4-inch overlap.

- T. Provide all necessary blocking, backing and framing for light fixtures, plumbing, millwork, accessories and all other items requiring same.

3.2 WOOD POLYMER DECKING

- A. Install per manufacturer's instructions.
- B. Use only carbide blades for cutting.
- C. Attach material with only hot dipped galvanized, ceramic galvanized or stainless screws. Pre-drill holes and make size no greater than $\frac{3}{4}$ of the screw diameter.
- D. Maintain minimum gap between each board per manufacturer's instructions.
- E. Apply an exterior grade glue between attached surfaces prior to inserting fasteners. Glue shall be a wood/plastic type that contains no chemicals that are harmful to the polyethylen polymer material.
- F. Place girders beneath decking spaced no greater than 16" o.c.
- G. Sand rough edges and remove all burs.

END OF SECTION 06100

SECTION 06200 FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:

1. Miscellaneous.

1.2 SUBMITTALS

- A. Product Data: For each type of factory-fabricated product and processes indicated.
- B. Samples: For the following:
1. Each type of finish required.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber Standards: Comply with DOC PS 20, "American Soft wood Lumber Standard," for lumber and with applicable grading rules of inspection agencies certified by the American Lumber Standards Committee Board of Review.
- B. Softwood Plywood: Comply with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood."
- C. Hardwood Plywood: Comply with HPVA HP-1, "Interim Voluntary Standard for Hardwood and Decorative Plywood."
- D. Preservative Treatment: Comply with NWWDA I.S. 4 for exterior finish carpentry to receive water-repellent preservative treatment.
- E. Millwork: Materials, fabrication, and installation shall comply with the applicable standards of the Woodwork Institute of California (W.I.C.).

2.2 TRIM

- A. Interior Standing and Running Trim: Finished lumber and moldings.
1. Species and Grade or Cut: Saw-textured, Clear All Heart redwood; Rift S Saw-textured, Clear Heart, western red cedar; NLGA, WCLIB, or WWPA. Douglass Fir No. 1 where indicated as douglas fir on drawings.

2.3 MISCELLANEOUS MATERIALS

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Finish Carpentry

- A. Fasteners for Exterior Finish Carpentry: Provide nails of stainless steel, unless not compatible with adjacent materials, then install hot-dip galvanized steel.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Condition finish carpentry to average prevailing humidity conditions in installation areas before installation, for a minimum of 48 hours.
- B. Prime and backprime lumber for painted finish exposed on the exterior. Comply with requirements for surface preparation and application in Division 9 Section 09912 "Painting."

3.2 INSTALLATION

- A. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where required for alignment. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts.
- B. Nailing: Nail trim with finish nails of proper size to hold member firmly in place without splitting the wood. Where necessary to avoid splitting, nail holes shall be pre-drilled. Split pieces shall be removed and replaced. On exposed finish work, set nails; putty only painted work. Blind nail all items where possible. Line up and evenly space exposed face nails. Nail all interior trim with galvanized nails, making all joints to exclude water and setting in waterproof adhesive. Nails shall be countersunk, and moulds neatly mitered and all joints tight and true.
- C. Sandpaper: Sandpaper all finished wood surfaces, except resawn surfaces, thoroughly as required to produce a uniformly smooth surface, always sanding in the direction of grain, except do not sand wood which is designed to be left rough; no coarse grained sandpaper mark, hammer mark, or other imperfections will be accepted.
- D. Repair damaged or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.

END OF SECTION 06200

SECTION 06402
INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes interior woodwork including for the following applications:
 - 1. Standing and running trim.
 - 2. Wood cabinets.
 - 3. Plastic Laminate cabinets.
 - 4. Stone counter top.
 - 5. Solid-surfacing-material countertops.
 - 6. Shop finishing of woodwork.
- B. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips, unless concealed within other construction before woodwork installation.

1.2 SUBMITTALS

- A. Product Data: For the following:
 - 1. Cabinet hardware and accessories.
 - 2. Finishing materials and processes.
- B. Shop Drawings: Include location of each item, plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples:
 - 1. Lumber and panel products for transparent finish, for each species and cut, finished on one side and one edge.
 - 2. Lumber and panel products with shop-applied opaque finish, for each finish system and color, with exposed surface finished.
 - 3. Plastic-laminate-clad panel products, for each type, color, pattern, and surface finish.
 - 4. Solid-surfacing materials.
 - 5. Granite stone top and finish.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of woodwork.
- B. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.

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Interior Architectural Woodwork

1. Provide AWI certification labels or compliance certificate indicating that woodwork complies with requirements of grades specified.
- C. Quality Standard: Unless otherwise indicated, comply with WIC's "Manual of Millwork" for grades of interior architectural woodwork, construction, finishes, and other requirements.
 1. Provide WIC-certified compliance certificate indicating that woodwork complies with requirements of grades specified.
 2. Provide WIC-certified compliance certificate for installation.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Wood for Transparent Finish:
 1. Species and Cut: Mahogany, clear finish, to match existing entry kiosk cabinet.
- B. Wood Products:
 1. Hardboard: AHA A135.4.
 2. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 3. Hardwood Plywood and Face Veneers: HPVA HP-1.
- C. High-Pressure Decorative Laminate: NEMA LD 3.
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Laminart.
 - c. Pioneer Plastics Corp.
 - d. Westinghouse Electric Corp.; Specialty Products Div.
 - e. Wilsonart International; Div. of Premark International, Inc.
 - f. Or equivalent.

- D. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ANSI Z124.3, for Type 5 or Type 6 material and performance requirements, without a precoated finish.
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Avonite, Inc.; Avonite.
 - b. DuPont Polymers; Corian.
 - c. Formica Corporation; Surell.
 - d. Wilsonart International, Div. of Premark International, Inc.; Gibraltar.
 - e. Or equivalent.
- E. Granite Counter Top: To match existing stonework at Document desk, minimum thickness $\frac{3}{4}$ ".

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Lumber and Plywood: Materials impregnated with fire-retardant chemical formulations to comply with AWPA C20 (lumber) and AWPA C27 (plywood), Exterior Type or Interior Type A. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Kiln-dry material after treatment.
- B. Fire-Retardant Particleboard: Panels made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
- C. Fire-Retardant Fiberboard: ANSI A208.2 medium-density fiber board panels made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials for a complete installation of architectural woodwork, except for items specified in Division 8 Section "Door Hardware."
- B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
1. Butt Hinges: to match existing.
- C. Frameless Concealed Hinges (European Type): to match existing.

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- D. Wire Pulls: to match existing.
- E. Catches: to match existing.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081 to match existing.
- G. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091 to match existing and rated for the following loads:
 - 1. Box Drawer Slides: 100 lbf.
 - 2. File Drawer Slides: 200 lbf.
 - 3. Pencil Drawer Slides: 45 lbf.
- H. Drawer Locks: BHMA A156.11, E07041 to match existing.
- I. Exposed Hardware Finishes: Complying with BHMA A156.18 for BHMA finish number indicated.
 - 1. To match existing.

2.4 INSTALLATION MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

2.5 FABRICATION

- A. General: Complete fabrication to maximum extent possible before shipment to Project site. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
 - 1. Interior Woodwork Grade: Premium complying with the referenced quality standard.
 - 2. Shop cut openings to maximum extent possible. Sand edges of cutouts to remove splinters and burrs.
 - 3. Seal edges of openings in countertops with a coat of varnish.
 - 4. For trim items wider than available lumber, use veneered construction. Do not glue for width.
 - 5. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
 - 6. Assemble casings in place except where limitations of access to place of installation require field assembly.
- B. Plastic-Laminate Cabinets:
 - 1. WIC Construction Style: Style B, Face Frame.

2. WIC Construction Type: Type I, multiple self-supporting units rigidly joined together.
3. WIC Door and Drawer Front Style: Face Frame to match existing..
4. Reveal Dimension: 1/2 inch.
5. Laminate Cladding for Exposed Surfaces: High-pressure decorative of grade indicated.
 - a. Horizontal Surfaces Other Than Tops: HGS.
 - b. Postformed Surfaces: HGP.
 - c. Vertical Surfaces: HGS.
 - d. Edges: HGS.
6. Materials for Semiexposed Surfaces Other Than Drawer Bodies : High-pressure decorative laminate, Grade VGS
 - a. Drawer Sides and Backs: Solid-hardwood lumber.
 - b. Drawer Bottoms: Hardwood plywood.
7. Colors, Patterns, and Finishes: As selected from manufacturer's full range.
8. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

C. Solid-Surfacing-Material Countertops:

1. Solid-Surfacing-Material Thickness: 3/4 inch.
2. Colors, Patterns, and Finishes: to match existing as required.
3. Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.

D. Flush Wood Paneling and Wainscots:

1. Lumber Trim and Edges: At fabricator's option, trim and edges indicated as solid wood (except moldings) may be either lumber or veneered construction compatible with grain and color of veneered panels.
2. Matching of Adjacent Veneer Leaves: to match existing.
3. Veneer Matching within Panel Face: to match existing.
4. Panel-Matching Method: No matching between panels is required. Select and arrange panels for similarity of grain pattern and color between adjacent panels.

E. Granite Stone-Material Countertops:

1. Stone Material Thickness: 3/4 inch.
2. Colors, Patterns, and Finishes: to match existing as required.

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3. Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated.

2.6 SHOP FINISHING

- A. Finish architectural woodwork at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.
- B. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling.
- C. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:
 1. Grade: Premium.
 2. WIC Finish System: to match existing.
 3. Staining: Match sample.
 4. Wash Coat for Stained Finish: Apply a vinyl wash coat to woodwork made from closed-grain wood before staining and finishing.
 5. Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.
 6. Sheen: Semigloss, 55-75 gloss units.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas and examine and complete work as required, including removal of packing and backpriming before installation.
- B. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in this Section for type of woodwork involved.
- C. Quality Standard: Install woodwork to comply with WIC Section 26 for the same grade specified in this Section for type of woodwork involved.
- D. Install woodwork level, plumb, true, and straight to a tolerance of 1/8 inch in 96 inches. Shim as required with concealed shims.
- E. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
- F. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening,

countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

- G. Standing and Running Trim : Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.
- H. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.
 - 1. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.
- I. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop. Calk space between backsplash and wall with sealant specified in Division 7 Section 07920 "Joint Sealants."

END OF SECTION 06402

SECTION 07210 BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Ceiling thermal insulation.
 - 2. Wall sound insulation.

1.2 SUBMITTALS

- A. Product Data: For each product indicated, including certification of recycled material content.
- B. Product test reports.
- C. Research/evaluation reports.

1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
- B. Thermal resistance factors (R-values) listed are aged values tested in accordance with ASTM C518 at 75 degrees Fahrenheit and 50 percent relative humidity for at least six months.
- C. Insulation shall be certified by the manufacturer to comply with California standards for insulating materials.

PART 2 - PRODUCTS

2.1 Insulation Materials

- A. General Requirements:
 - 1. Provide insulating materials, where exposed to the interior of the building, the attic space, or where no other material is installed directly against the face of the insulation, with a Flame Spread rating of at least 25, as per the reference standards.
 - 2. Width of material, if not listed, shall be of largest practical width to fit tightly against or between the framing members where the insulation is installed.

Building Insulation

B. Batt Insulation

1. Unfaced fiberglass batt insulation
 - a. Post-industrial recycled content: minimum 30%.
 - b. Manufacturers: Owens Corning, Toledo, OH (800/438-7465), Johns Manville, Inc., Denver, CO (800/654-3103), CertainTeed, Valley Forge, PA (800/441-9850) or equal.
 - c. R value at ceiling: R-19
2. Unfaced fiberglass batt sound insulation.
 - a. Post-consumer recycled content minimum 30%.
 - b. Manufacturers: Owens Corning, Toledo, OH (800/438-7465), Johns Manville, Inc., Denver, CO (800/654-3103), CertainTeed, Valley Forge, PA (800/441-9850) or equal.
 - c. Size of batts: Width as required to friction fit between studs. Thickness shall be 3 1/2".

2.2 INSULATION FASTENERS

- A. Adhesively Attached, Spindle-Type Anchors with Washers: Plate formed from perforated galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square, welded to projecting steel spindle with a diameter of 0.105 inch and length capable of holding insulation of thickness indicated securely in position with 1-1/2-inch-square or diameter self-locking washers complying with the following:
1. Washers formed from 0.016-inch-thick galvanized steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place, but not less than in place.
 2. Where anchors are located in ceiling plenums provide capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install insulation to comply with insulation manufacturer's written instructions applicable to products and application indicated. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- B. Installation of General Building Insulation: Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
1. Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:

- a. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - b. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
2. For wood-framed construction, install mineral-fiber blankets according to ASTM C 1320:
3. Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
 - a. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions.
 - b. Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.
 - c. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.
4. Retain insulation in place by metal clips and straps or integral pockets within window frames, spaced at intervals recommended in writing by insulation manufacturer to hold insulation securely in place without touching spandrel glass. Maintain cavity width of dimension indicated between insulation and glass.
5. Install insulation where it contacts perimeter fire-containment system to prevent insulation from bowing under pressure from perimeter fire-containment system.

END OF SECTION 07210

SECTION 07920 JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes sealants for the following:
 - 1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces.
 - 2. Exterior joints in horizontal traffic surfaces.
 - 3. Interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 4. Interior joints in horizontal traffic surfaces.

1.2 SUBMITTALS

- A. Product Data: For each joint sealant product indicated.
- B. Samples: For each joint sealant product indicated.
- C. Schedule: For each seal ant showing type, primer , color propos ed and for use at each condition and/or location.

1.3 QUALITY ASSURANCE

- A. Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants , field test their adhesion to joint substrates.

1.4 WARRANTY

- A. Special Installer's Warranty: Written warranty in which Installer agrees to repair or replace elastomeric joint sealants that do not meet requirements specified in this Section or fail in adhesion within specified warranty period two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with requirements specified in this Section within 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

Section 07920 – Page 2
Joint Sealants

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.

2.2 MATERIALS, GENERAL

- A. 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.
- B. Colors of Exposed Joint Sealants: As selected from manufacturers full line of available colors.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants, General: ASTM C 920.

- B. Low-Modulus Nonacid-Curing Silicone Sealant:

1. Available Products:
 - a. Dow Corning; 790.
 - b. GE Silicones; Silpruf.
 - c. NUCO Industries, Inc.; HiFlex 331 or NuFlex 309.
 - d. Ohio Sealants, Inc.; VP 275.
 - e. Pecora Corporation; 864 or 890.
 - f. Polymeric Systems, Inc.; PSI-641.
 - g. Sonneborn Building Products Div., ChemRex Inc.; Omniseal.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Additional Movement Capability: Capable of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
5. Exposure: Use NT (nontraffic).
6. Substrates: Uses M, G, A, and, as applicable to joint substrates indicated, O.

- C. Medium-Modulus Neutral-Curing Silicone Sealant:

1. Available Products:

- a. Dow Corning; 791 or 795.
 - b. NUCO Industries, Inc.; HiFlex 393.
 - c. Polymeric Systems, Inc.; PSI-631.
2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Exposure: Use NT (nontraffic).
 5. Substrates: Uses M, G, A, and, as applicable to joint substrates indicated, O.

D. Mildew-Resistant Silicone Sealant:

1. Available Products:

- a. Dow Corning; 786 Mildew Resistant.
 - b. GE Silicones; Sanitary 1700.
 - c. NUCO Industries, Inc.; NuFlex 302.
 - d. Pecora Corporation; 898 Silicone Sanitary Sealant.
 - e. Polymeric Systems, Inc.; PSI-611.
 - f. Tremco; Tremsil 600 White.
2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Exposure: Use NT (nontraffic).
 5. Substrates: Uses G, A, and, as applicable to joint substrates indicated, O.

E. Single-Component Nonsag Urethane Sealant:

1. For joints subject to traffic and not subject to traffic, provide the following:

a. Available Products:

- 1) Mameco International; Vulkem 116.
 - 2) Sika Corporation; Sikaflex - 1a.
 - 3) Sonneborn Building Products Div., ChemRex Inc.; NP 1.
- b. Type and Grade: S (single component) and NS (nonsag).
 - c. Class: 25.
2. Exposure: Use T (traffic) and NT (nontraffic).
 3. Substrates: Uses M, G, A, and, as applicable to joint substrates indicated, O.

F. Single-Component Nonsag Polyurethane Sealant:

1. For moving joints, expansion and control joints, perimeter caulking, exhibiting tenacious adhesion:

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Joint Sealants

- a. Available Products:
 - 1) Tremco Dymonic FC.
 - 2) Or equivalent.
 - b. Type and Grade: S (single component) and NS (nonsag).
 - c. Class: 50.
2. Movement Capacity: + 100%, - 50%.
3. Substrates: Uses M, A, and, as applicable to joint substrates indicated, O.
- G. Single-Component Pourable Urethane Sealant:
- 1. Available Products:
 - a. Bostik Inc.; Chem-Calk 950.
 - b. Pecora Corporation; NR-201.
 - c. Polymeric Systems, Inc.; Flexiprene PSI-951.
 - d. Sonneborn Building Products Div., ChemRex Inc.; SL 1.
 - 2. Type and Grade: S (single component) and P (pourable).
 - 3. Class: 25.
 - 4. Exposure: Use T (traffic).
 - 5. Substrates: Uses M, G, A, and, as applicable to joint substrates indicated, O.

2.4 LATEX JOINT SEALANTS

- A. Latex Sealant: ASTM C 834.

- 1. Available Products:
 - a. Bostik Inc.; Chem-Calk 600.
 - b. NUCO Industries, Inc.; NuFlex 330.
 - c. Pecora Corporation; AC-20.
 - d. Polymeric Systems, Inc.; PSI-701.
 - e. Sonneborn Building Products Div., ChemRex, Inc.; Sonolac.
 - f. Tremco; Tremflex 834.

2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining ; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2.6 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 with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
 - 1. Remove foreign material from joint substrates that could interfere with adhesion of joint sealant.
 - 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 from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking 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.
- D. Sealant Installation: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- E. Install sealant backings to support sealants during application and at position required to produce optimum sealant movement capability.

Joint Sealants

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.
- F. Place sealants so they directly contact and fully wet joint substrates.
1. Completely fill recesses provided for each joint configuration.
 2. Produce uniform, cross-sectional shapes and depths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealants from surfaces adjacent to joint.
 2. Use tooling agents that are approved by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Joint Configuration: Concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- H. Installation of Preformed Silicone-Sealant System:
1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
 2. Complete installation of horizontal joints before installing vertical joints. Lap vertical joints over horizontal joints. At end of joints, cut silicone extrusion with a razor knife.
- I. Clean excess sealants or sealant smears adjacent to joints as installation progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
- 3.2 JOINT SEALANT SCHEDULE
- A. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces: (Sealants used shall match similar used sealants at adjacent locations. If there is not adjacent location use the following):
1. Control and Expansion Joints in Cast-in-Place Concrete: Single-component nonsag urethane sealant.
 2. Control and Expansion Joints in Unit Masonry: Single-component nonsag urethane sealant.
 3. Joints between Different Materials Listed above: Single-component nonsag urethane sealant.
 4. Perimeter Joints between Materials Listed above and Frames of Doors and Windows: Single-component nonsag urethane sealant.

- B. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces: (Sealants used shall match similar used sealants at adjacent locations. If there is not adjacent location use the following):.
1. Perimeter Joints of Exterior Openings Where Indicated: Single-component nonsag urethane sealant.
 2. Tile Control and Expansion Joints : Single-component nonsag polyurethane sealant.
 3. Vertical Control Joints on Exposed Surfaces of Interior Unit Masonry and Concrete Walls and Partitions: Single-component nonsag polyurethane sealant.
 4. Perimeter Joints between Interior Wall Surfaces and Frames of Interior Doors and Windows: Single-component nonsag urethane sealant.
 5. Joints between Plumbing Fixtures and Adjoining Walls, Floors, and Counters: Medium-modulus neutral-curing silicone sealant.

END OF SECTION 07920

SECTION 08110 STEEL DOOR FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes steel doors and frames.

1.2 SUBMITTALS

- A. Product Data: For each product indicated. Include door frame designation, type, level and model, material description, label compliance, fire-resistance ratings, and finishes.
- B. Door Schedule. Use same reference designations indicated on Drawings.

1.3 QUALITY ASSURANCE

- A. Steel Door Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or comparable:
 - 1. Amweld Building Products, Inc.
 - 2. Ceco Door Products; a United Dominion Company.
 - 3. Kewanee Corporation (The).
 - 4. Mesker Door, Inc.
 - 5. Republic Builders Products.
 - 6. Steelcraft; a division of Ingersoll-Rand.
 - 7. Or equivalent.

2.2 MATERIALS

- A. Metallic Zinc-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 (ZF120) zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

2.3 FRAMES

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Steel Door Frames

- A. General: ANSI A250.8; conceal fastenings, unless otherwise indicated.
- B. Frame Steel Sheet Thickness:
 - 1. 0.078-inch (14 gauge) for level 3 steel doors.
- C. Door Silencers: Three silencers on single-door frames and two silencers on double-door frames.
- D. Supports and Anchors: Not less than 0.042-inch- (thick zinc-coated steel sheet.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Zinc-coat items that are to be built into exterior walls according to ASTM A 153/A 153M, Class C or D as applicable.

2.4 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant.
- B. Tolerances: Comply with SDI 117.
- C. Prepare door frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
- D. Frame Construction:
 - 1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints. Provide temporary spreader bars. No knockdown frames allowed.
- E. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- F. Locate hardware as indicated or, if not indicated, according to ANSI A250.8.

2.5 FINISHES

- A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1. Wall Anchors: Provide at least three anchors per jamb.
- B. After installation, remove protective wrappings from doors and frames and touch up prime coat with compatible air-drying primer.

END OF SECTION 08110

SECTION 08211 FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes solid core doors as follows:
 - 1. Doors with wood-veneer faces and factory finishing (to match existing doors).
- B. See Division 6 Section 06200 "Finish Carpentry".

1.2 SUBMITTALS

- A. Product Data: For each type of door. Include factory-finishing specifications to match existing.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details; location and extent of hardware blocking; mortises, holes, and cutouts; requirements for veneer matching; factory finishing; fire ratings; and other pertinent data.
- C. Samples: For each face material and finish.

1.3 QUALITY ASSURANCE

- A. Quality Standard: Comply with NWWD A I.S.1-A, "Architectural Wood Flush Doors."
- B. Fire-Rated Wood Doors: Doors that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Algoma Hardwoods Inc.
 - 2. Ampco Products, Inc.
 - 3. Buell Door Company.

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Flush Wood Doors

4. Chappell Door Co.
5. Eagle Plywood & Door Manufacturing, Inc.
6. Eggers Industries; Architectural Door Division.
7. GRAHAM Manufacturing Corp.
8. Haley Brothers, Inc.
9. Ideal Wood Products, Inc.
10. IPIK Door Company.
11. Lambton Doors.
12. Marlite.
13. Mohawk Flush Doors, Inc.
14. Oshkosh Architectural Door Co.
15. Poncraft Door Co.
16. Southwood Door Co.
17. Vancouver Door Company, Inc.
18. VT Industries Inc.
19. Weyerhaeuser Company.
20. or equivalent.

2.2 DOOR CONSTRUCTION

A. Doors for Transparent Finish:

1. Grade: Premium
2. Species and Cut: to match existing.
3. Match between Veneer Leaves: to match existing.
4. Assembly of Veneer Leaves on Door Faces: to match existing.

B. Doors for Opaque Finish:

1. Grade: Premium.
2. Faces for Interior Doors: to match existing.

C. Fire-Rated Doors:

1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.
2. Edge Construction: Manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance.

2.3 FABRICATION

A. Fabricate doors in sizes indicated for Project-site fitting.

B. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.

- C. Factory machine doors for hardware that is not surface applied.
 - 1. Metal Astragals: Prime machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

2.4 FACTORY FINISHING

- A. General: Finish doors at factory to match existing.
- B. Grade: Premium.
- C. Finish: NWWDA I.S.1-A System
- D. Staining: Match existing with sample.
- E. Sheen to match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- B. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
 - 1. Comply with NFPA 80 for fire-rated doors.
- C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

END OF SECTION 08211

SECTION 08334 OVERHEAD COILING GRILLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes overhead coiling grilles.
- B. See Division 16 Sections for electrical service, connections, disconnects, and circuit breakers for powered operators, and accessories.

1.2 PERFORMANCE REQUIREMENTS

- A. Operational Life: Design overhead coiling grille components and operator to operate for not less than 10,000 cycles. One complete cycle of grille begins with grille in closed position and then grille is moved to open position and back to closed position.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details of installation, wiring diagrams, and attachments to other Work.
 - 1. Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.
- C. Samples: For each exposed finish.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Manufacturer: Rolling Grilles shall be manufactured by a firm with a minimum of five years experience in the fabrication and installation of rolling doors/grilles.
- C. Single Source Responsibility: Provide doors/grilles, guides, motors and related primary components from one manufacturer.
- D. Pre-Installation Conference: Schedule and convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

PART 2 - PRODUCTS

2.1 OVERHEAD COILING GRILLES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alpine Overhead Doors, Inc.
 - 2. Atlas Door Corp.; Div. of Clopay Building Products Co.
 - 3. Cookson Company (The).
 - 4. Cornell Iron Works, Inc.
 - 5. Dynamic Closures (1995) LTD.
 - 6. Mahon Door Corp.
 - 7. McKeon Rolling Steel Door Company, Inc.
 - 8. Metro Door.
 - 9. Overhead Door Corporation, ***Basis of Design: 672 Series***
 - 10. Pacific Rolling Door Co.
 - 11. Raynor Garage Doors.
 - 12. Wayne-Dalton Corp.
 - 13. Windsor Door; a United Dominion Company.
 - 14. or equivalent
- C. Grille Curtain: Network of 5/16-inch minimum diameter horizontal rods, with network of vertically interlocking links to form a pattern. Bottom bar shall be an extruded aluminum tubular shape.
 - 1. Rod Spacing: Approximately 2 inches o.c.
 - 2. Link Spacing: Approximately 9 inches o.c.
 - 3. Material: Aluminum, ASTM B 221.
 - 4. Pattern: Straight lattice.
 - 5. Infill Panels: Lexan panel in straight lattice pattern.
- D. Endlocks: Continuous end links, chains, or other devices at ends of rods, locking and retaining grille curtain in guides against excessive pressures, maintaining curtain alignment, and preventing lateral movement.
- E. Bottom Bar: Extruded shape or 2 angles, not less than 1/8 inch thick, metal to match slats.
 - 1. Astragal: Replaceable, adjustable, continuous, compressible gasket of flexible vinyl, rubber, or neoprene.
 - 2. Power-Operated Grilles: Combination bottom astragal and sensor edge.

- F. Curtain Jamb Guides: Extruded-aluminum shape, with continuous integral wear strips and removable stops on guides.
- G. Hood: Metal to match slats with closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting projecting beyond wall face, and intermediate support brackets as required to prevent sag.
- H. Hardware: Push/pull handles for push-up-operated or emergency-operated grilles and locking device.
 - 1. Lock cylinder is specified in Division 8 Section 08710 "Door Hardware."
- I. Power-Operated Units : Provide safety interlock switch to disengage power supply when grille is locked.
- J. Mounting Tube Frame: Designed to support grille; factory fabricated from structural-steel tubes; fastened to floor and structure above grille; to be built into wall construction; and complete with anchors, connections, and fasteners.
- K. Counterbalance: Adjustable, oil-tempered, heat-treated steel helical torsion springs mounted around structural carbon-steel pipe, and contained in barrel of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. of span under full load. Counterbalance shall be adjustable by means of an adjusting tension wheel.
- L. Finish: Bronze anodized finish.
- M. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.
 - 1. Sensing Edge Protection: Pneumatic sensing edge.
 - 2. Operator Controls: Push-button and key operated control stations with open, close, and stop buttons for flush mounting, for interior location.
 - 3. Emergency Egress Device: Interior flush mounted handle mechanism to automatically open grille part way to permit passage even if power is not available.

PART 3 - EXECUTION

3.1 PREPERATION

- A. Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

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Overhead Coiling Grilles

3.2 INSTALLATION

- A. Install grille and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports.
- B. Lubricate bearings and sliding parts; adjust to operate easily, free from warp, twist, or distortion.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train State's maintenance personnel to adjust, operate, and maintain grilles. Refer to Division 1 Section 01770 Closeout Procedures.

END OF SECTION 08334

SECTION 08711 DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Commercial door hardware.
 - 2. Cylinders for doors specified in other Sections.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include details of electrified door hardware and wiring diagrams.
- C. Samples: For each exposed finish.
- D. Door Hardware Schedule: Organized into door hardware sets indicating type, style, function, size, label, hand, manufacturer, fasteners, location, and finish of each door hardware item. Include description of each electrified door hardware function, including sequence of operation.
- E. Keying Schedule: Detail Owner's final keying instructions for locks.
- F. Product certificates.
- G. Before any finish hardware is ordered or purchased for this work, submit to the State for its acceptance, a complete hardware schedule listing all opens by groups of all finish hardware proposed to be furnished for this work, including catalog cuts for each item, giving manufacturer's name, catalog number, finish and size.

1.3 QUALITY ASSURANCE

- A. Supplier Qualifications: Person who is or employs a qualified DHI Architectural Hardware Consultant.
- B. Keying Conference: Conduct conference at Project site. Incorporate keying conference decisions into final keying schedule.
- C. Keys: Deliver keys to District by registered mail.
- D. Templates: Obtain and distribute templates for doors, frames, and other work specified to be factory prepared for installing door hardware.

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Door Hardware

- E. Standards: Comply with BHMA A156 series standards, Grade 1.
- F. Certified Products: Provide door hardware that is listed in BHMA directory of certified products.

1.4 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within warranty period.
 - 1. Warranty Period for Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Product: Subject to compliance with requirements, provide the product named for each door hardware item indicated in Door Hardware Sets.
- B. Basis-of-Design Product: Product named for each door hardware item indicated in Door Hardware Sets establishes the basis of design. Provide either the named product or a comparable product by one of the manufacturers specified for each type of hardware item (upon acceptance by the District).

2.2 DOOR HARDWARE

- A. Scheduled Door Hardware: Provide door hardware according to Door Hardware Sets at the end of Part 3. Manufacturers' names are abbreviated.

2.3 PIVOTS AND HINGES

A. Manufacturers:

1. Hinges:

- a. Baldwin Hardware Corporation (BH).
- b. Hager Companies (HAG).
- c. McKinney Products Company; Div. of ESSEX Industries, Inc. (MCK).
- d. PBB, Inc. (PBB).
- e. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
- f. Stanley Commercial Hardware; Div. of The Stanley Works (STH).
- g. Or equivalent.

2. Pivots and Pivot Hinges:

- a. DORMA Door Controls Inc.; Member of The DORMA Group (DC).

- b. Hager Companies (HAG).
 - c. Lawrence Brothers, Inc. (LB).
 - d. LCN Closers; an Ingersoll-Rand Company (LCN).
 - e. McKinney Products Company; Div. of ESSEX Industries, Inc. (MCK).
 - f. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
 - g. Stanley Commercial Hardware; Div. of The Stanley Works (STH).
 - h. Or equivalent.
- B. General: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- C. Hinge Base Metal: Unless otherwise indicated, provide the following:
- 1. Exterior Hinges: 4 ½ x 4 ½ stainless-steel ball bearing, nonremovable pin.
- D. Nonremovable Pins: Provide set screw in hinge barrel that prevents removal of pin while door is closed; for outswinging exterior doors.
- E. Screws: Phillips flat-head screws; screw heads finished to match surface of hinges.
- 1. Metal Doors and Frames: Machine screws (drilled and tapped holes).

2.4 MECHANICAL LOCKS AND LATCHES

- A. All doors from all rooms are to have locks or latches of a type which are operable at all times from the inside by merely turning the lever and shall not require special knowledge or effort unless otherwise specifically noted.
- B. Manufacturers:
- 1. Adams Rite Manufacturing Co. (ARM).
 - 2. Architectural Builders Hardware Mfg., Inc. (ABH).
 - 3. Best Lock Corporation (BLC).
 - 4. Corbin Russwin Architectural Hardware; Div. of Yale Security Inc. (CR).
 - 5. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
 - 6. Hager Companies (HAG).
 - 7. Ives, H. B. (IVS).
 - 8. McKinney Products Company; Div. of ESSEX Industries, Inc. (MCK).
 - 9. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
 - 10. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
 - 11. Yale Security Inc.; Div. of Williams Holdings (YAL).
 - 12. Or equivalent.
- C. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.

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Door Hardware

2.5 BOLTS

A. Flush Bolts: BHMA Grade 1, designed for mortising into door edge.

1. Manufacturers:

- a. Adams Rite Manufacturing Co. (ARM).
- b. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
- c. Hager Companies (HAG).
- d. Ives, H. B. (IVS).
- e. NT Quality Hardware; an Ingersoll-Rand Company (NTQ).
- f. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
- g. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
- h. Yale Security Inc.; Div. of Williams Holdings (YAL).
- i. Or equivalent.

2.6 CLOSERS

A. General:

- 1. All closers shall meet the requirements of the California Building Code Section 1133B.2.5 regarding maximum effort to operate.
 - a. Exterior Doors: 5 pounds maximum pressure to operate.
 - b. The sweep period of the closer shall be adjusted so that from an open position of 20 degrees, the door will take at least three (3) seconds to move to a point three (3) inches from the latch (measured to the leading edge of the door).

B. Surface-Mounted Closers:

1. Manufacturers:

- a. Arrow Architectural Hardware; Div. of ESSEX Industries, Inc. (AAH).
- b. Corbin Russwin Architectural Hardware; Div. of Yale Security Inc. (CR).
- c. DORMA Door Controls Inc.; Member of The DORMA Group (DC).
- d. LCN Closers; an Ingersoll-Rand Company (LCN).
- e. Norton Door Controls; Div. of Yale Security Inc. (NDC).
- f. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
- g. Yale Security Inc.; Div. of Williams Holdings (YAL).
- h. Or equivalent.

2.7 STOPS AND HOLDERS

- A. Stops and Holders: Provide floor stops for doors, unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic. Where floor or wall stops are not appropriate, provide overhead holders.

1. Manufacturers:

- a. Architectural Builders Hardware Mfg., Inc. (ABH).
- b. Baldwin Hardware Corporation (BH).
- c. Door Controls International (DCI).
- d. DORMA Door Controls Inc.; Member of The DORMA Group (DC).
- e. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
- f. Hager Companies (HAG).
- g. Ives, H. B. (IVS).
- h. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
- i. Triangle Brass Manufacturing Company, Inc. (TBM).
- j. Trimco (T).
- k. Yale Security Inc.; Div. of Williams Holdings (YAL).
- l. Or equivalent.

- B. Silencers for Door Frames: Neoprene or rubber; fabricated for drilled-in application to frame.

2.8 DOOR GASKETING AND THRESHOLDS

- A. Door Gasketing: Provide continuous weather-strip gasketing on exterior doors. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

1. Manufacturers:

a. Gasketing:

- 1) Hager Companies (HAG).
- 2) National Guard Products, Inc. (NGP).
- 3) Pemko Manufacturing Co., Inc. (PEM).
- 4) Reese Enterprises, Inc. (RE).
- 5) Sealeze Corporation (SEL).
- 6) Ultra Industries; a Macklanburg-Duncan Company (ULT).
- 7) Zero International, Inc. (ZRO).
- 8) Or equivalent.

b. Door Bottoms:

- 1) Hager Companies (HAG).
- 2) National Guard Products, Inc. (NGP).
- 3) Pemko Manufacturing Co., Inc. (PEM).

Door Hardware

- 4) Reese Enterprises, Inc. (RE).
 - 5) Sealeze Corporation (SEL).
 - 6) Ultra Industries; a Macklanburg-Duncan Company (ULT).
 - 7) Zero International, Inc. (ZRO).
 - 8) Or equivalent.
2. Air Leakage: Not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
 3. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.

2.9 CYLINDERS, KEYING, AND STRIKES

- A. Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturers:

- a. Same manufacturer as for locks and latches.
 - b. Best Lock Corporation (BLC).
 - c. Corbin Russwin Architectural Hardware; Div. of Yale Security Inc. (CR).
 - d. NT Falcon Lock Co.; an Ingersoll-Rand Company (NTF).
 - e. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
 - f. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
 - g. Yale Security Inc.; Div. of Williams Holdings (YAL).
 - h. Or equivalent.
2. Number of Pins: Five, Six or Seven as requested by District. Key system shall be Schlage, to match existing, six pin, E way, verify with District prior to submittals..
 3. High-Security Grade: BHMA Grade 1A, listed and labeled as complying with UL 437 (Suffix A).
 4. Permanent Cores: Manufacturer's standard; finish face to match lockset; interchangeable cores. As required by District.

- B. Keying System: Factory-registered keying system; grand master key system.

1. Keys: Provide nickel-silver keys permanently inscribed with a visual key control number and "DO NOT DUPLICATE" notation. In addition to one extra blank key for each lock, provide three change keys and five master keys.

- C. Strikes: Manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set.

2.10 FABRICAT ION

- A. Base Metals: Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials if different from specified standard.
- B. Fasteners: Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated. Provide steel machine or wood screws or steel through bolts for fire-rated applications.
- C. Spacers or Sex Bolts: For through bolting of hollow metal doors.
- D. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."
- E. Finishes: Comply with BHMA A156.18.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine doors and frames for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Steel Door and Frame Preparation: Comply with DHI A115 series. Drill and tap doors and frames for surface-applied hardware according to SDI 107.
- C. Mounting Heights: Comply with the following requirements, unless otherwise indicated:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."
- D. Adjust and reinforce attachment substrates as necessary for proper installation and operation. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- E. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with accessibility requirements.
 - 1. Door Closers: Adjust sweep period so that from an open position of 70 degrees, the door will take at least three seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.

Door Hardware**3.2 DOOR HARDWARE SETS**

- A. Furnish the following items in the amounts required for a complete and operable facility. Refer to the Door Schedule on the Drawings for Hardware Group Identification. Each door, or pair of doors within a single opening, has an individual Hardware Group identification.
- B. Refer to descriptions as noted herein before hardware items not specifically noted by type and manufacturer.

<u>Description</u>	<u>Type</u>	<u>Mfr</u>
Group1 Ranger Office Door (101):		
1 ½ Pair Butts	FBF 191	(ST)
1 Lockset	L9456 17 Lever to match existing system	(SCH)
1 Closer	4511 T (L) Slide Track Pull side	(LCN)
1 Kickplate	K0050 SS	(T)
1 Door Stop	#1214 CK	(T)
Group 2 Temporary Ticket Door (102):		
1 ½ Pair Butts	FBF 191	(ST)
1 Lockset	Schlage to match existing system	(SCH)
1 Closer	4511 T (L) Slide Track Pull side	(LCN)
1 Kickplate	K0050 SS	(T)
1 Door Stop	#1214 CK	(T)
1 Card Reader Interface Module Alarm Panel (interface with existing system)	1064R-002-UL P/N 300 060 005	Pacom
1 Card Reader	HID 6005BBB00	ProxPoint
Group 3 Ranger Office/Visitor Door (103):		
2 ½ Pair Butts	FBF 191	(ST)
1 Lockset	Schlage to match existing system	(SCH)
3 Deadbolts XL	L9460 with Optional 'EZ' Turn 11-800	(SCH)
1 Kickplate	K0050 SS	(T)
1 Door Stop	#1214 CK	(T)
2 Wall Stop	#1270 CK	(T)
Group 4 Restroom Doors (existing (typical of 4):		

Replace existing door closers
1 Closer

4511 T (L) Slide Track Pull side (LCN)

END OF SECTION 08711

SECTION 08800 GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes glazing for the following products and applications:

1. Windows.

1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement without failure, including loss of glass breakage attributable to the following: defective manufacture, fabrication, and installation; deterioration of glazing materials; or other defects in construction.

1.3 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: 12-inch-square, for each type of glass product indicated.
- C. Glazing Schedule: Use same designations indicated on Drawings.
- D. Sealant compatibility and adhesion test reports.

1.4 QUALITY ASSURANCE

- A. Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Glazing Publications: Comply with recommendations of the following, unless more stringent requirements are indicated.
1. GANA Publications "Glazing Manual" and "Laminated Glass Design Guide."

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form, made out to Owner and signed by manufacturer, in which manufacturer agrees to furnish replacements for units that deteriorate from normal use by developing defects attributable to the manufacturing process, f.o.b. the nearest shipping point to Project site, within warranty period.

Glazing

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other articles including schedules where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.

2.2 GLASS MATERIALS

- A. Glazing:
1. Polycarbonate insulating panel glazing complying with ASTM 1886: manufacture's standard polycarbonate sheet.

2.3 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glazing products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Elastomeric Glazing Sealants: ASTM C 920, Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontacky), M, G, A, and, as applicable to glazing substrates indicated, O.
1. Low-Modulus Nonacid-Curing Silicone: With additional movement capability of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
 - a. Products:
 - 1) Dow Corning; 790.
 - 2) GE Silicones; Silpruf.
 - 3) NUCO Industries, Inc.; HiFlex 331
 - 4) Pecora Corporation; 864.
 - 5) Sonneborn, Div of ChemRex, Inc.; Omniseal.
 - 6) Tremco; Spectrem 1.
 - 7) Or equivalent

2.4 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

2.5 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
 - 1. Clean glazing channels and other framing members receiving glasses immediately before glazing. Remove coatings not firmly bonded to substrates.
 - 2. Protect glass edges from damage during handling and installation. Remove glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance from Project site and legally dispose of off Project site.
 - 3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by sealant compatibility and adhesion testing.

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Glazing

- B. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged, including natural causes, accidents, and vandalism, during construction period.

3.2 GLAZING SCHEDULE

- A. Glazing Products: GE Lexan, (polycarbonate laminate), or equivalent. Thickness 10mm.

END OF SECTION 08800

SECTION 09200 LATH AND PLASTER

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide lath and plaster where indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.2 SUBMITTALS

- A. Product data: Within twenty-eight (28) calendar days after the Contractor has received the Owner's Notice to proceed, submit:
 - 1. Material list of items proposed to be provided under this Section.
 - 2. Manufacturers' specifications and other data needed to prove compliance with the specified requirements.
 - 3. Samples of the proposed accessories.
 - 4. Manufacturers' recommended installation procedures for accessories which, when reviewed by the State's Representative, will become the basis for accepting or rejecting actual installation procedures used for those accessories on the Work.

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
- B. In addition to complying with pertinent codes and regulations of governmental agencies having jurisdiction, comply with materials handling and workmanship provisions of the "Reference Specifications" of the California Lathing and Plastering Contractors Association.
- C. ENVIRONMENTAL CONDITIONS: No application is to be made when atmospheric temperature is 40 degrees F. (5 degrees C.) or expected to drop below 40 degrees F. (5 degrees C.) within 24 hours after application. Do not apply to frozen or frost-covered surfaces. Portland cement shall be protected against uneven and excessive evaporation during hot, dry weather and from strong blasts of dry air either natural or artificial.

Lath and Plaster

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate with General Contractor on site.

PART 2 - PRODUCTS

2.1 METAL MEMBERS

- A. Metal plastering accessories:
 - 1. Fabricate from 26 gage or heavier hot-dip galvanized steel, prime-coated unless otherwise specifically reviewed by the Architect.
 - 2. Use manufacturer's standard shapes specifically designed for the proposed use.
 - 3. Provide protective coating to permit removal of over-spray upon completion of plastering.
- B. Metal lath at walls:
 - 1. Provide paper-backed metal lath welded or woven in such a manner as to provide not less than 1/4" keying between wire and paper backing; or obtain keying by a uniform series of slots in a paper separator woven between the two layers of wire.
 - 2. Comply with Fed Spec QQ-L-101.
 - 3. Backing paper rated as equal to two layers Grade D building paper or supply the same.

2.2 PLASTER

- A. Cement:
 - 1. Comply with ASTM C150, type I.
 - 2. Do not use plastic cement of any type.
- B. Lime:
 - 1. Provide dry hydrated lime complying with ASTM C206, type S.
 - 2. Lime putty (if used): Weigh no more than 83 lbs. per cu. ft.
- C. Sand: Comply with ASTM C144, clean and well graded from coarse to fine.
- D. Water: Clean and free from deleterious amounts of acid, alkali, and organic materials.
- E. Finish: To match existing (adjacent surface).

2.3 PLASTER TRIM ACCESSORIES

- A. Casing Bead: Superior 'J' Bead SJB078W200
- B. Corner Bead: US Gypsum 1-A Expanded Corner Bead
- C. Inside Corner: Superior Inside Corner SIC078-112

2.4 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the review of the State's Representative.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Verify that lath and plaster may be installed in accordance with all pertinent codes and regulations, the original design, and the referenced standards. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Insure that substrate is level, true and plumb, and adequately prepared for lath and plaster. Commencement of papering or lathing expresses acceptance of substrate.
- C. Submit location of all weep screeds, expansion joints, soffit vents, reglets, and all other embedded metal plastering accessories to Architect for review prior to installation of scratch coat. Any plastering material installed prior to obtaining State's Representative review of expansion joint/plastering accessory locations will be removed and replaced at no additional cost to the State.

3.2 INSTALLATION OF FRAMING

- A. Coordination:
 - 1. Carefully coordinate with other trades to assure proper provision in such work for installation of the work of this Section.

Lath and Plaster

- B. Install members and component s in strict accordance with arrangements shown on the Dra wings and the manufacturer's recommendations as reviewed by the State's Representative.

C. Alignment:

1. Align vertically within a tolerance of one in 1000.
2. Align horizontally within a tolerance of one in 500.
3. On framing members to rece ive a finished plaster surface, align the finish subsurface to vary not more than 1/8" from the plane of surfaces of adjacent framing and furring members.

3.3 PLASTER TRIM ACCESSORIES

- A. Attach all grounds and accessories to supports, so as to provide true grounds for the plaster. Wire, tie, nail, or staple all accessories to supporting surfaces sufficiently to hold the accessories in place during plastering.
- B. Install casing beads at all termi nations of plaster abutting adjacent material.

3.4 LATHING

- A. Install the approved metal lath in strict accordance with the manufacturers' recommendations as reviewed by the State's Representative, and wit h pertinent requirement s of governmental agencies having jurisdiction.
- B. Insure that lath and accessories are properly and rigidly attached, with specified overlaps and no paper breaks.

3.5 PLASTERING

- A. Perform mixing, plastering, and pl aster curing in strict accordance with provisions of the referenced standards.
- B. Apply three coat system of ce ment plaster and moist cure, in accordance with manufacturer's in struction and in conformance with the referenced standards. No coat shall have cold joints, except at the corners. Total thickness shall be 1/2"
- C. All work shall be plumb, strai ght, true, even and in accordance with highest trade standards.

- D. Make overnight joining at natural breaking points such as vertical arises, expansion joints, angles, and changes in plane. Each coat of plaster for an entire surface from top to bottom and between natural breaking points shall be applied in 1 day.
- E. Scratch coat:
1. Apply with sufficient material to completely embed wire or metal reinforcement to a thickness of $\pm 1/2"$
 2. Score horizontally to receive the brown coat.
- F. Brown coat:
1. Do not apply brown coat sooner than 48 hours after installation of the scratch coat.
 2. Apply the brown coat to the dampened scratch coat sufficiently thick to bring total thickness of scratch and brown coats to a minimum of $3/4"$. Float to a true, even surface, with no variations greater than $1/4"$ under a 5 foot straight edge.
 3. Leave sufficiently rough to assure adequate bond of the finish coat.
- G. Finish Coat:
1. Do not apply finish coat sooner than fourteen days after installation of the brown coat.
 2. Apply sufficiently thick ($1/8"$ minimum) to bring the total thickness of the plaster to specified thickness in all areas. Apply coat to entire surface without showing laps and joinings.
Note: The State is very concerned about the quality of the finish. Take every precaution to prevent telegraphing of structural members and other imperfections.
 3. Final coat shall be a machine applied medium dash finish.
- H. Tolerances: Finish plaster true and even within a tolerance of one in 500, leaving the finished surfaces free from tool marks and other blemishes.
- I. Mesh at Cracks:
1. Before applying the finish coat, the brown coat shall be thoroughly inspected for cracking. Where cracking has developed in the brown coat, a glass fiber mesh, alkaline-resistant tape of 6 X 6 or finer mesh, 4" wide, shall be applied over cracks as application of the finish coat progresses.
 2. Alternatively, glass fiber mesh may be applied with a pressure-sensitive adhesive on the back of the tape.

Lath and Plaster

3. Glass fiber mesh shall also be placed at restraint points such as around door and window corners, vents, points where pipes and service lines penetrate the wall, and at corners of projecting construction.
- J. Moist cure each base coat of plaster for not less 48 hours for the scratch coat and finish coat, and not less than 96 hours for the brown coat. In hot, dry, windy weather, fog spray as required to prevent dryouts, glazed areas, bloom.

3.6 REPAIRING and CLEANING

- A. Defective Work: Plaster which is cracked or crazed as a result of improper timing and curing will not be accepted. Remove and replace unacceptable plaster, including plaster base materials, if damaged during removal of defective plaster.
- B. Cleaning: Promptly remove plaster from surfaces which are not to be plastered. Clean or repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, and equipment and clean areas of all plaster debris and leave broom clean.
- C. Patching: Prior to acceptance of the project, all damage, cracks, checks, discolorations, and other imperfections in the work shall be cut out full depth and patched to match adjoining surfaces.
- D. Wipe metal accessories clean after application of each coat.
- E. In addition to other protection, protect adjacent surfaces from the accidental application of plaster.
- F. In addition to other requirements for cleaning, immediately upon completion of this portion of the Work visually inspect adjacent surfaces and remove all traces of spilled and splashed plaster.

3.7 GUARANTEE

- A. Contractor shall guarantee his work for two (2) years against failure due to faulty materials and workmanship and shall repair same without cost to the State.

END OF SECTION 09200

**SECTION 09250
GYPSUM WALLBOARD (AND ASSEMBLIES)**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section also includes:

1. Gypsum Wallboard
2. Gypsum board panels for ceilings and soffits.
3. Cementing and taping.
4. Non-load-bearing steel framing.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each component.

1.3 QUALITY ASSURANCE

A. The following references, codes and standards are hereby made a part of this Section and gypsum wallboard work shall conform to the applicable requirements therein except as otherwise specified herein or shown on the Drawings. Nothing in the Drawings or these Specifications shall be construed as permitting work which is contrary to code requirements.

1. "Recommended Specifications for the Application and Finishing of Gypsum Board" published by the Gypsum Association (GA-253-2004).

B. Store materials in protected dry storage areas. Neatly stack in flat position with suitable stickers to prevent sagging and contact with concrete slabs.

1.4 ENVIRONMENTAL CONDITIONS

A. Maintain a temperature between 50 degrees and 80 degrees F within the building for twenty-four (24) hours prior to gypsum drywall installation, during installation and after installation until the building is occupied. Provide ventilation as required to remove excess moisture.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. For all gypsum wallboard work throughout the Project, provide materials, including wallboard, accessories, fasteners, and finishing materials produced by

Gypsum Wallboard

one manufacturer, unless noted otherwise. Acceptable manufacturers are: USG, Georgia Pacific (GP) Gypsum, or equivalent.

2.2 MATERIALS

- A. Gypsum Wallboard: ASTM C36, 5/8" (16 mm) thickness unless otherwise noted. Material used in fire rated assemblies shall be Type X, UL labeled and approved as 1 hour fire resistive. Pieces to be 4 ft. (1200 mm) wide, maximum permissible lengths as required for minimum of end joints, ends square cut. Material to receive troweled finish, spray applied finish, or flexible coverings, shall have long edges tapered to receive manufacturer's standard joint treatment.
 - 1. Recycled Content: Gypsum recycled content shall be a minimum of 10% post industrial content. Paper content to be 100% post consumer recycled content.
- B. Water Resistant (W-R) Gypsum Wallboard: ASTM C 30, 5/8" (16 mm) thickness unless otherwise noted, water resistant board. Material used in fire rated assemblies shall be Type X, UL labeled and approved as 1 hour fire resistive. Pieces to be 4 ft. (1200 mm) wide, maximum permissible lengths as required for minimum of end joints, ends square cut, long edges tapered to receive manufacturer's standard joint treatment.
- C. Metal Edge Trim: USG 200-A, National Gypsum No. 100, or equivalent, where board edge is exposed; where edge is not exposed, USG 200-B, National Gypsum No. 200, or equivalent, may be used. Corner bead to be USG "Dur-A-Bead" #103, Gold Bond, or equal, 1-1/4" x 1-1/4" (32 mm x 32 mm).
- D. Control Joints: USG #093, Western, or equal.
- E. Fasteners: Metal screws as recommended by metal system manufacturer and meeting ASTM C 1002. Use S-12 screws for 20 gage or heavier metal.
- F. Tape: ASTM C 475, perforated reinforcing tape, [fiberglass reinforcing tape where joining to adjacent existing plaster,] and fasteners.
- G. Joint Compound: Provide compound in conformance with ASTM 475, as recommended by the manufacturer of the gypsum products being used, for the finish specified.
- H. Fasteners: Provide self piercing steel screws for installation of gypsum board to wood or cold-formed steel studs in conformance with ASTM C 1002.
 - 1. Type W: For fastening to wood members.

2.3 STEEL FRAMING

- A. Steel Framing, General: Comply with ASTM C 754 for conditions indicated. Steel Sheet Components: Metal complying with ASTM C 645 requirements.
 - 1. Protective Coating: Interior Applications ASTM A653/ A653M, G40, hot dip galvanized.
- B. Suspended Ceiling and Soffit Framing:
 - 1. Tie Wire: ASTM A 641/ A641M, Class 1 zinc coating, soft temper, 0.0625 inch diameter wire, or double strand of 0.0475 inch diameter wire.
 - 2. Wire Hangers: ASTM A 641/ A641 M, Class 1 zinc coating, soft temper, 0.162 inch diameter
 - 3. Carrying Channels: Cold-rolled, commercial steel sheet with a base metal thickness of 0.538 inch, a minimum ½ inch wide flange, and in depth indicated.
- C. Partition and Soffit Framing:
 - 1. Steel Studs and Runners: ASTM C 645, in depth indicated. Minimum base metal thickness (0.0179 inch)

PART 3 - EXECUTION

3.1 COORDINATION

- A. Coordinate with other trades for provisions for insulation, blocking, metal backing plates, special anchors, etc., and ensure that such items are properly installed and located prior to installing wall finish.
- B. Coordinate with trades responsible for furnishing access doors with exact locations subject to Project Manager's approval.

3.2 MATERIALS HANDLING

- A. Protect gypsum products from moisture and contaminants. Do not store near materials that may off gas harmful volatile organic compounds, such as solvents, kerosene, etc.

3.3 EXAMINATION

- A. Inspect surfaces, backing, framing and furring systems, etc., to receive wallboard, and report any discrepancies. Starting work implies acceptance of existing conditions.
- B. Where air plenums occur above suspended or furred ceilings, verify that plenum surfaces are free of dirt, dust and loose construction soil and that construction work is otherwise complete, equipment installed and that surfaces and openings

Gypsum Wallboard

which might provide “leaks” are sealed prior to commencing installation of ceiling assembly.

3.4 NON-LOAD-BEARING FRAMING INSTALLATION

- A. General: Comply with ASTM C754, and ASTM C 840 requirements that apply to framing installation.
- B. Suspended Ceiling and Soffit Framing:
 - 1. Suspend ceiling hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in from of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 - 3. Attach hangers to structural members. Do not support ceilings from or attach hangers to permanent metal forms, ducts, pipes or conduit.
 - 4. Screw furring to wood framing.
- C. Partition and Soffit Framing: where studs are installed directly against exterior walls, install isolation strip between studs and wall.

3.5 GYPSUM WALLBOARD INSTALLATION

- A. General: Install gypsum wallboard with metal screws in conformance with the requirements of the Gypsum Association Specifications GA.216.
- B. Install wallboard plumb, level, and/or plane.
 - 1. Layout panels to minimize waste; reuse cutoffs whenever feasible.
 - 2. Select panel sizes to minimize waste.
- C. Single Layer Gypsum Wallboard: Erect single layer gypsum wallboard in non-fire rated walls in most economical direction, with edges and ends on firm bearing. Neatly fit ends of edges where they abut. Erect single layer fire rated gypsum wallboard vertically, with edges and ends occurring over firm bearing.

- D. Water Resistant (WR) Gypsum Wallboard: Install where gypsum wallboard is used as a backing for ceramic tiles and in "wet" areas, or where WR is indicated. Install in the same manner as regular gypsum wallboard. Treat cut edges and holes with sealant.
- E. Tile Backing Panels: Cementitious Backer Unit Application (ANSI A 108.11)
- F. Properly space fastenings as per manufacturer's specifications and code requirements, with heads set slightly below surface for proper cementing, but without breaking paper covering. Loosely butt joints to be taped; firmly butt concealed joints to be left untreated. Stagger end joints and joints in finish material 12" (300 mm) min. with those in backing. Joints on opposite sides of partition shall occur on different studs. Install backing for finish material to present no surface imperfections in applied finish. Make holes and cutouts by sawing or by such method as will not fracture core or tear covering and with such accuracy that plates, escutcheons, trim, etc., will cover edges. Clearance for cutouts in partitions shall not exceed 1/4".
- G. Install metal edge trim at exposed edges and ends and at untrimmed joints between wallboard finish and other material. Install corner bead at all outside corners. Where trim is required at wallboard edge, and headers, studs, sill or other backing are not available for positive fastening of trim, apply trim to board with contact type of adhesive.

3.5 GYPSUM WALLBOARD FINISH

- A. General: The finish at the Soffit area of the Ticket Sales shall be an 'Orange Peel', finish. Provide sample for acceptance by District and State's Representative.

3.6 TAPING AND CEMENTING

- A. Tape and cement gypsum wallboard in accord with manufacturer's directions. Unless otherwise noted, finish shall be smooth sanded without imperfections, tool marks, etc. (3 coat min.). Tape and cement all wallboard. At sound insulated and air sealed construction, ensure that joints and voids between adjoining wallboard panels (including corner intersections) are filled solidly with compound prior to taping. Subcontractor's attention is directed to Reference Standard 1.02A(1) whereby wallboard surfaces to receive gloss type paints (other than "flat") shall receive a thin skim coat of joint compound. Such treatment shall be smooth sanded to provide a uniform surface for painting. Taping and cementing need not be finished for appearance where board serves as backing to other finish except that treatment shall not interfere with proper installation of finish or permit "telegraphing".

3.7 OTHER METAL TRIM

Gypsum Wallboard

A. General:

1. The Drawings do not purport to show all locations and requirements for metal trim.
2. Carefully study the Drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this Work.

3.8 CLEANING UP

- A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.
- B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, and surplus material of this Section.

3.9 WASTE MANAGEMENT

- A. Separate clean waste gypsum products from contaminants for recycling in accordance with the Waste Management Plan. Do not include wood, plastic, metal, asphalt impregnated gypsum board or any gypsum board coated with glass fiber, vinyl, decorative paper, paint or other finish. Place in designated area and protect from moisture and contamination.
- B. Store scraps larger than 2 square feet for use in patching and small infill areas.
- C. Clean waste gypsum products shall be recycled by:
 1. Returning to gypsum board manufacturer in lieu of landfill.
- D. Separate metal waste, packaging and all other materials in accordance with the Waste Management Plan and place in designated areas for recycling or reuse.

END OF SECTION 09250

SECTION 09310 CERAMIC TILE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Ceramic tile.
 - 2. Glazed wall tile.
 - 3. Crack-suppression membrane for thin-set tile installations.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints.
- C. Samples:
 - 1. Each type, composition, color, and finish of tile.
 - 2. Assembled samples with grouted joints for each type, composition, color, and finish of tile.

1.3 QUALITY ASSURANCE

- A. All work shall be performed in compliance with the standards established by the Tile Council of America (TCA).
- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Revise subparagraph below to suit Project.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
 - 2. Products: Subject to compliance with requirements, provide one of the products specified.

Ceramic Tile

3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
5. Basis-of-Design Product: The design for each tile type is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.

2.2 TILE PRODUCTS

A. Manufacturers:

1. American Marazzi Tile, Inc.
2. American Olean; Div. of Dal-Tile International Corp.
3. Crossville Ceramics Company, L.P.
4. Daltile; Div. of Dal-Tile International Inc.
5. Florida Tile Industries, Inc.
6. GranitiFiandre.
7. Summitville Tiles, Inc.
8. United States Ceramic Tile Company.
9. Or equivalent

B. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated

C. Glazed Wall Tile at Restroom as follows:

1. Module Size: 6 x6.
2. Thickness: 5/16 inch. (assumed)
3. Face: Plain with modified square edges.
4. Basis-of-Design Product: to match existing tile.
5. Products:
 - a. Bullnose and outcorners for a complete installation.

D. Glazed Floor Tile at Restroom as follows:

1. Module Size: 6 x 6.
2. Thickness: 5/16 inch. (assumed)
3. Face: Plain with modified square edges.
4. Basis-of-Design Product: to match existing tile.
5. Flooring shall be slip resistant per CBC 1124B1.
6. Products:
 - a. Bullnose and outcorners for a complete installation.

E. Trim Products:

1. Bullnose, inside corners, round top base, outside corners and other pieces required for a complete closed installation (no edge exposure of tile is allowed).

2.3 ACCESSORY MATERIALS

- A. Crack-Suppression Membranes for Thin-Set Tile Installations: Manufacturer's standard product that complies with ANSI A118.10.

1. Chlorinated-Polyethylene-Sheet Product: Nonplasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric, 0.030-inch nominal thickness.
 - a. Product: Noble Company (The); Nobleseal TS.

2.4 SETTING AND GROUTING MATERIALS

- A. Manufacturers:

1. Atlas Minerals & Chemicals, Inc
2. Bonsal, W. R., Company.
3. Bostik.
4. Custom Building Products.
5. LATICRETE International Inc.
6. MAPEI Corporation.
7. Summitville Tiles, Inc.
8. Or equivalent.

- B. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.1A, TCA F112-05.

- C. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, TCA W202-05.

1. Prepackaged dry-mortar mix containing dry additive to which only water must be added.
2. Prepackaged dry-mortar mix combined with liquid-latex additive.
3. For wall applications, provide nonsagging mortar.

- D. Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting Epoxy : ANSI A118.3.

- E. Standard Sanded Cement Grout: ANSI A118.6, color as indicated.

2.5 MISCELLANEOUS MATERIALS

- A. Elastomeric Sealants: Elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section 07920 "Joint Sealants."

1. One-Part, Mildew-Resistant Silicone: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates

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indicated, O; formulated with fungicide , intended for in-service exposures of high humidity and extreme temperatures.

a. Products:

- 1) Dow Corning Corporation; Dow Corning 786.
- 2) GE Silicones; Sanitary 1700.
- 3) Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
- 4) Tremco, Inc.; Tremsil 600 White.
- 5) Or equivalent.

B. Cementitious Backer Units: ANSI A118.9 in maximum lengths available to minimize end-to-end butt joints.

1. Thickness: 1/2 inch.

2. Products:

- a. C-Cure; C-Cure Board 990.
- b. Custom Building Products; Wonderboard.
- c. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
- d. USG Corporation; DUROCK Cement Board.
- e. Or equivalent.

C. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials.

D. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Fill cracks , holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions.
- C. Remove protrusions, bumps, and ridges by sanding or grinding.
- D. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.
- E. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.2 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Grind cut edges of tile abutting trim, finish, or built-in items. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust tile layout so no tile row is less than one-half tile width. Provide uniform joint widths, unless otherwise indicated.
- F. Lay out tile wainscots to next full tile beyond dimensions indicated.
- G. Expansion Joints: Locate expansion joints and other sealant-filled joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- H. Grout tile to comply with requirements of ANSI A108.10, unless otherwise indicated.
 - 1. For chemical-resistant epoxy grouts, comply with ANSI A108.6.
- I. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.
 - 1. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.
- J. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.

Ceramic Tile

1. Tile floors in wet areas.
 2. Tile floors composed of rib-backed tiles.
- K. Install tile on walls and floors with the following joint widths:
1. Glazed Wall and Floor Tile: 1/16 inch.
- L. Apply grout sealer to cementitious grout joints in tile floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.3 FLOOR TILE INSTALLATION SCHEDULE

- A. Exterior floor installation on concrete ; cement mortar bed (thick set) bonded to concrete; TCA F101.
1. Bond Coat/Thin-Set Mortar: Latex- portland cement mortar.
 2. Grout: Sand-portland cement Polymer-modified sanded grout.

3.4 WALL TILE INSTALLATION SCHEDULE

- A. Wall installation over masonry or concrete; cement mortar bed (thick set); TCA W202.
1. Bond Coat/Thin-Set Mortar: Latex- portland cement mortar.
 2. Grout: Sand-portland cement or Polymer-modified sanded grout.
 3. Placing of tile: Random placement of accent at field tile.

3.5 CLEANING

- A. Cleaning:
1. Upon completion of placing and grouting, clean the work of this section in accordance with recommendations of the Manufacturer's of the materials used.
 2. Protect metal surfaces, cast iron, and vitreous items from effects of acid cleaning.
 3. Flush surfaces with clean water before and after cleaning.
- B. Provide tile surfaces clean and free from cracked, broken, chipped, unbonded, and otherwise defective units.
- C. Provide required protection of tile surfaces to prevent damage and wear prior to acceptance of the Work by the Owner.

END OF SECTION 09310

SECTION 09652
SHEET VINYL FLOOR COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes sheet vinyl floor coverings, without backings.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Samples for Color Selection: In manufacturer's standard size and standard color ring.
- C. Qualification Data: For Installer.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project that are competent in heat-welding techniques required by manufacturer for floor covering installation.
 - 1. Engage an installer who employs workers for this Project that are trained or certified by floor covering manufacturer for heat-welding techniques required.

1.4 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 85 deg F, in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Install floor coverings after other finishing operations, including painting, have been completed.

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Sheet Vinyl Floor Coverings

1.5 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, in roll form and in full roll width for each color, pattern, and type of floor covering installed.

PART 2 - PRODUCTS

2.1 SHEET VINYL FLOOR COVERING

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- B. Products: Subject to compliance with requirements, provide one of following:
 - 1. Armstrong World Industries, Inc.;
 - 2. Azrock Commercial Flooring, DOMCO;
 - 3. Congoleum Corporation;
 - 4. Lonseal, Inc.;
 - 5. Mannington Mills, Inc.;
 - 6. Tarkett Inc.;
 - 7. or equivalent
- C. Unbacked Sheet Vinyl Floor Covering: ASTM F 1913, 0.080 inch thick.
- D. Color and Pattern: As selected from manufacturer's full range.
- E. Wearing Surface: Smooth with embedded abrasives.
- F. Sheet Width: As standard with manufacturer.
- G. Seaming Method: Standard.
- H. Fire-Test-Response Characteristics:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

2.2 INSTALLATION MATERIALS

- A. Adhesives: Water-resistant type recommended by manufacturer to suit sheet vinyl floor covering and substrate conditions indicated.
- B. Heat-Welding Bead: Solid-strand product of floor covering manufacturer.
 - 1. Color: Match floor covering.

- C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of floor coverings, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of floor coverings..
- B. Remove substrate coatings and other substances that are incompatible with floor covering adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- C. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- D. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 - 1. Do not install floor coverings until they are same temperature as space where they are to be installed.
- E. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Unroll sheet vinyl floor coverings and allow them to stabilize before cutting and fitting.
- B. Lay out sheet vinyl floor coverings as follows:
 - 1. Maintain uniformity of floor covering direction.
 - 2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in floor covering substrates.
 - 3. Match edges of floor coverings for color shading at seams.
 - 4. Avoid cross seams.
- C. Scribe and cut floor coverings to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.

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Sheet Vinyl Floor Coverings

- D. Extend floor coverings into toe spaces, door reveals, closets, and similar openings.
- E. Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on floor coverings as marked on substrates. Use chalk or other nonpermanent marking device.
- F. Install floor coverings on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern with pieces of floor coverings installed on covers. Tightly adhere floor covering edges to substrates that abut covers and to cover perimeters.
- G. Adhere floor coverings to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- H. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and use welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.
- I. Perform the following operations immediately after completing floor covering installation:
 - 1. Remove adhesive and other blemishes from floor covering surfaces.
 - 2. Sweep and vacuum floor coverings thoroughly.
 - 3. Damp-mop floor coverings to remove marks and soil.
 - a. Do not wash floor coverings until after time period recommended by manufacturer.
- J. Protect floor coverings from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 09652

SECTION 09680 CARPET

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes tufted carpet.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include the following:
 - 1. Existing floor materials to be removed.
 - 2. Existing floor materials to remain.
 - 3. Seam locations.
 - 4. Pattern type, repeat, location, direction, and starting point.
 - 5. Pile direction.
 - 6. Transition, and other accessory strips.
- C. Samples: For each for each carpet and exposed accessory and for each color and pattern required.
- D. Product Schedule: Use same room and product designations indicated on Drawings and in schedules.
- E. Maintenance data.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

1.4 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."
- B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by manufacturer.

Carpet

- D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet tile before installing these items.

1.5 WARRA NTY

- A. Carpet Warranty: Manufacturer's standard form in which manufacturer agrees to replace carpet that does not comply with requirements or that fails within 10 ten years from date of Substantial Completion. Warranty does not include deterioration or failure of carpet from unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Carpet: Full-width rolls equal to 10 ten percent of amount installed for each type indicated, but not less than 10 sq. yd.

PART 2 - PRODUCTS

2.1 CARPET (CPT-1).

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- B. Products: Subject to compliance with requirements, provide one of the following:
1. Patcraft, Dalton, GA, (1 800 241 4014)
 - a. Color and Pattern: 10104 Best Foot Forward – 04703 Loafers.
 2. J & J Commercial, Dalton, GA (1 800 241 4586)
 - a. Color and Pattern: to be similar to above with District acceptance.
 3. Shaw Contract, Dalton, GA (1 800 257 7429)
 - a. Color and Pattern: to be similar to above with District acceptance.
 4. or equivalent.
- C. Fiber Content: ECO Solution Q.
- D. Surface Pile Weight: 26 oz.

- E. Weight Density: 204, 504.
- F. Primary Backing: Synthetic.
- G. Secondary Backing: Ultra loc pattern.
- H. Width: 12 feet.
- I. Critical Radiant Flux Classification: Class I, per ASTM E 648.
- J. Finished Pile Thickness: .199"
- K. Tufted Pile Height: 6/32.

2.2 RUBBER BASE

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.
- B. Colors and Patterns: As selected from manufacturer's full range.
- C. Wall Base: ASTM F 1861.
 - 1. Burke Mercer Flooring Products;
 - 2. Endura;
 - 3. Johnsonite;
 - 4. Musson, R. C. Rubber Co.;
 - 5. Nora Rubber Flooring, Freudenberg Building Systems, Inc.;
 - 6. Pirelli Rubber Flooring;
 - 7. Roppe Corporation;
 - 8. or equivalent
- D. Type (Material Requirement): TP (rubber, thermoplastic
- E. Group (Manufacturing Method): I (solid, homogeneous)
- F. Style: Cove (with top-set toe).
- G. Minimum Thickness: 0.125 inch
- H. Height: 4 inches
- I. Lengths: Coils in manufacturer's standard length
- J. Outside Corners: Premolded .
- K. Inside Corners: Premolded.
- L. Surface: Smooth.

Carpet

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with CRI 104, Section 8, "Direct Glue-Down
- B. Maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
- C. Install pattern parallel to walls and borders.

END OF SECTION 09680

SECTION 09912 PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and field painting of exterior and interior items and surfaces.
- B. Definitions. The following definitions supersede all others:
 - 1. Exposed: In contact with the atmosphere, or with air, in the finished construction,
 - 2. Exposed to view: Visible from any point of view in the finished construction.
 - 3. Exterior: Outside of an enclosed environment.
 - 4. Interior: Within an enclosed environment.
 - 5. Factory Finished: Glass, plastic, plastic laminate, chrome plating, polished metal, anodized metal, carpet and fabric are factory finished and, unless otherwise specified, shall not be painted.
 - 6. Ferrous: Containing iron.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Samples: Three, 8 inch x 10 inch color samples for each type of finish-coat material indicated.

1.3 PROJECT CONDITIONS

- A. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
- B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- D. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

Painting

EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to the State's Representative.

- 1. Quantity: provide not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- 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. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
 - 1. Dunn-Edwards Co. (Dunn-Edwards).
 - 2. ICI Dulux Paint Centers (ICI Dulux Paints).
 - 3. Kelly-Moore Paint Co. (Kelly-Moore).
 - 4. PPG Industries, Inc. (Pittsburgh Paints).
 - 5. Sherwin-Williams Co. (Sherwin-Williams).

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
- C. Colors: As selected from manufacturer's full range, to match adjacent color (scheme).

2.3 PREPARATORY COATS

- A. Exterior Primer: Exterior alkyd or latex-based primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.
 - 1. Ferrous-Metal and Aluminum Substrates: Rust-inhibitive metal primer.

2. Zinc-Coated Metal Substrates: Galvanized metal primer.
3. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

B. Interior Primer: Interior latex-based or alkyd primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

1. Ferrous-Metal Substrates: Quick drying, rust-inhibitive metal primer.
2. Zinc-Coated Metal Substrates: Galvanized metal primer.
3. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

2.4 EXTERIOR FINISH COATS

A. Exterior Flat Acrylic Paint:

1. Dunn-Edwards; Evershield #W701.
2. ICI Dulux Paints; 2200-XXXX Dulux Professional Exterior 100 Percent Acrylic Flat Finish.
3. Kelly-Moore; 1205 Color Shield Exterior Flat Acrylic House Paint.
4. Pittsburgh Paints; 6-600 Series SpeedHide Exterior House Paint Flat Latex.
5. Sherwin-Williams; A-100 Exterior Latex Flat House & Trim Paint A6 Series.

B. Exterior Semigloss Acrylic Enamel:

1. Dunn-Edwards; Permasheen #W901.
2. ICI Dulux Paints; 2406-XXXX Dulux Professional Exterior 100 Percent Acrylic Semi-Gloss Finish.
3. Kelly-Moore; 1250 Acry-Lustre Exterior Semi-Gloss Acrylic Finish.
4. Pittsburgh Paints; 6-900 Series SpeedHide Exterior House & Trim Semi-Gloss Acrylic Latex Paint.
5. Sherwin-Williams; A-100 Latex Gloss A8 Series.

2.5 INTERIOR FINISH COATS

A. Interior Semigloss Acrylic Enamel:

1. Dunn-Edwards; Permasheen #W901.
2. ICI Dulux Paints; 1406-XXXX Dulux Professional Acrylic Semi-Gloss Interior Wall & Trim Enamel.
3. Kelly-Moore; 1649 Acrylic-Latex Semi-Gloss Enamel.
4. Pittsburgh Paints; 6-500 Series SpeedHide Interior Semi-Gloss Latex.
5. Sherwin-Williams; ProMar 200 Interior Latex Semi-Gloss Enamel B31W200 Series.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with procedures specified in PDCA P4 for inspection and acceptance of surfaces to be painted.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
- C. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - 4. Ferrous Metals without shop-applied coating: ; remove oil, grease, dirt, rust, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
 - 5. Ferrous Metals with shop-applied coating: remove oil, grease, dirt, rust, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

6. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

E. Material Preparation:

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Do not add solvent, thinners or extenders. Use coating materials as supplied from manufacturer's container.

F. Exposed-to-View Surfaces: Include areas visible when permanent or built-in fixtures, grilles, convactor covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

1. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
2. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
3. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.

G. Sand lightly between each succeeding enamel or varnish coat.

H. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Omit primer over metal surfaces that have been shop primed and touchup painted.
2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.

I. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

J. Minimum Coating Thickness: Apply paint materials not thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.

Painting

- K. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- L. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- M. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- N. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

3.2 CLEANING AND PROTECTING

- A. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
- B. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by the State's Representative.
- C. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.3 EXTERIOR PAINT SCHEDULE

A. Wood:

- 1. Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Exterior wood primer for acrylic enamels.
 - b. Finish Coats: Exterior semigloss acrylic enamel.

B. Ferrous Metal:

- 1. Acrylic Finish: Two finish coats over a rust-inhibitive primer.

- a. Primer: Exterior ferrous-metal primer (not required on shop-primed items).
- b. Finish Coats: Exterior semigloss acrylic enamel.

C. Zinc-Coated Metal:

- 1. Acrylic Finish: Two finish coats over a galvanized metal primer.
 - a. Primer: Exterior galvanized metal primer.
 - b. Finish Coats: Exterior semigloss acrylic enamel.

3.4 INTERIOR PAINT SCHEDULE

A. Wood:

- 1. Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Exterior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes.
 - b. Finish Coats: Exterior semigloss acrylic enamel.

B. Concrete Unit Masonry:

- 1. Acrylic Finish: Two finish coats over a block filler.
 - a. Block Filler: Concrete unit masonry block filler.
 - b. Finish Coats: Exterior flat acrylic paint.

C. Ferrous Metal:

- 1. Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Exterior ferrous-metal primer (not required on shop-primed items).
 - b. Finish Coats: Exterior semigloss acrylic enamel.

D. Zinc-Coated Metal:

- 1. Acrylic Finish: Two finish coats over a primer.
 - a. Primer: Exterior zinc-coated metal primer.
 - b. Finish Coats: Exterior semigloss acrylic enamel.

END OF SECTION 09912

SECTION 09950 WALL COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:

1. Acoustical Wall Panel.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical wall panel.
- B. Shop Drawings: Include location and extent of each wall covering type, seam locations and termination points. Details of trim members and width of panels. Width of panels and location of vertical seams are critical.
- C. Samples: Minimum 6 inch x 6 inch sample of specified acoustical wall panel; minimum 4 inch long samples of attachment method including trim and decorative accents.
- D. Certification: Manufacturer's certifications that products comply with specified requirements including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry Factory Mutual Laboratory classifications of NRC.

1.3 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: Provide wall coverings with flame-spread and smoke-developed indices of not more than 25 and 200, respectively, per ASTM E 84.
- B. Sound Absorption Characteristics: ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- C. Mockups: Install mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.
1. Install mockups, 4'-0" x 4'-0" for District Review.

1.4 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Wall Coverings

1. Wall Covering: Full-size units of wall covering equal to 10 percent of amount of each type installed.

1.5 DELIVERY, STORAGE, and HANDLING.

- A. Deliver acoustical wall panels to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical wall panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical wall panels carefully to avoid chipping edges or damaged units in any way.

1.6 PROJECT CONDITIONS.

- A. Soundsoak Fiberglass Panels: All work must be complete and dry prior to installation. Installation shall be carried out where the temperature is between 40 degrees F and 120 degrees F.

PART 2 - PRODUCTS.

2.1 TEXTILE WALL COVERING

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- B. Products: Subject to compliance with requirements, provide one of the following:
 1. Acoustical Wall Panels, by Armstrong World Industries, Inc. (or equivalent).
 - a. Surface Texture: Fabric
 - b. Composition: Fiberglass
 - c. Finish: Maharam products (or equivalent)
 - d. Color: Maharam products (or equivalent) will be selected from High Performance 1 or 2 Wallcovering.
 - e. Thickness: Fiberglass 1"
 - f. Width: 24 inches
 - g. Panel Height: 10 feet.
 - h. Edge Profile: K2C2 both vertical edges for interface with plastic 'H' spline for installation.
 - i. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with FM label on product carton, A mounting (.80).

- j. Flame Spread: AST M E 84; composite rating 25 or less flame spread/ 200 or less smoke developed.
- k. Internal spline ('H' spline) Item #428.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install wall panels by attaching the panels to an existing wall per the manufacturer's instructions.
- B. Replace damaged and broken panels.
- C. Routine maintenance of Soundsoak wall panels should consist of frequent vacuuming to minimize dirt accumulation. A dry or wet shampoo can be used on Soundsoak fabric. Work in with a damp sponge and vacuum to remove residue.

END OF SECTION 09950

SECTION 10431 SIGNS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Accessibility Signage: Provision for all signage required by governing accessibility requirements, including but not limited to site access signage, parking stall signage, restroom and shower signage, including Braille.

1.2 SUBMITTALS

- A. Product Data: For each product indicated Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 2. Provide message list for each sign, including large-scale details of wording, lettering, and braille layout.
- B. Samples: For each sign material indicated that involves color selection.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: current approved edition of the of the California Code of Regulations, Title 24, California Building Code .
- B. Regulatory Requirements: Comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 SIGNS

Signs

- A. General: Provide signs that comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction as shown on the drawings.
- B. Manufacturers:
1. American Graphics Inc.
 2. APCO Graphics, Inc.
 3. ASI Sign Systems, Inc.
 4. Best Manufacturing Co.
 5. Grimco, Inc.
 6. Innerface Sign Systems, Inc.
 7. Mohawk Sign Systems.
 8. Seton Identification Products.
 9. Signature Signs, Inc.
 10. Tubular Specialties Manufacturing, Inc.
 11. Or equivalent.
- C. Plastic Laminate: Laminated colored plastic with wood backing and with adhesive attachment; core color contrasting to exterior face color; total laminate thickness 0.125 inch. Lettering engraved through face material to expose core.
- D. Unisex Sign: Circle 1/4" thick and 12" in diameter with a 1/4" equilateral triangle with edges 12" long and vertex pointing upward with male and female figure Model # 840- B. Color of Symbol: White figure and words on contrasting background. Color equal to No. 15090 in Federal Specification Standard 595A.
- E. Individual Sign(s): Circle 1/4" thick and 12" in diameter with male figure and accessible symbol or 1/4" equilateral triangle with edges 12" long and vertex pointing upward with female figure and accessible symbol. Color of Symbol: Contrasting figure and words on contrasting background to that of door. Provide color samples.
- F. ADA Sign: 10.5" x 8" with raised letters and Grade II Braille to be located on the latch - outside approach side of the door at 60" AFF and allowing approach within 3" of the sign at accessible restroom. Signs to read "RESTROOM".
- G. ADA Sign: width to be determined x 8" with raised letters and Grade II Braille to be located on the latch - outside approach side of the door at 60" AFF and allowing approach within 3" of the sign at accessible restroom. Signs to read "MEN" AND "WOMEN" as located on the documents.
- H. Tactile and Braille Copy: Manufacturer's standard process for producing copy complying with ADA Accessibility Guidelines and ICC/ANSI A117.1. Text shall be accompanied by Grade 2 braille. Produce precisely formed characters with square cut edges free from burrs and cut marks.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Locate signs and accessories where indicated, using mounting methods of types described and in compliance with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and other defects in appearance.
 - 2. Wall Signs : Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
 - 3. Install door signs after doors are mounted, painted and finished.
- B. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using methods indicated below:
 - 1. Mechanical Fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.

END OF SECTION 10431

SECTION 10436 POST AND PANEL SIGNS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:

1. Nonilluminated, single-sheet-type post and panel signs.

1.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide post and panel signs capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated, determined according to the current approved edition of the California Building Code:

1. Wind Loads: Determine loads based on a uniform pressure of 60 pounds/square foot, acting in any direction.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include plans, elevations, and installation details.
- C. Samples: For each material, finish, and color.
1. Include a sample of graphic-image process.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Andco Industries Corporation.
 2. APCO Graphics
 3. ASI Sign System, Inc.
 4. Best Manufacturing Co.
 5. Innerface Sign Systems, Inc.
 6. Kaltech Industries Group, Inc.
 7. Signature Signs, Inc.
 8. Supersine Company (The).
 9. Vomar Products, Inc.

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Post and Panel Signs

10. or equivalent.

2.2 MATERIALS

- A. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of alloy 5005-H15.
- B. Redwood posts: species and grade/cut: Saw-textured, clear all heart redwood; or RIS saw textured, clear heart western red cedar.
- C. Concrete for Postholes: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 2500 psi, unless otherwise indicated.

2.3 POSTS

- A. General: Fabricate posts to lengths required for mounting method indicated.
 - 1. Direct-Burial Method: Provide posts 24 inches longer than height of sign to permit direct embedment in concrete foundations.
 - 2. Baseplate Method: Provide posts with baseplates, flanges, or other fittings, welded to bottom of posts. Drill holes in base plate for anchor-bolt connection.
 - a. Provide anchor bolts of size required for connecting posts to concrete foundations.
- B. Redwood or Cedar Posts: Square posts, size as called for on the drawings (saw texture).

2.4 SIGN PANELS

- A. Unframed Single-Sheet Panels: Provide unframed single-sheet sign panels with edges mechanically and smoothly finished.
 - 1. Panel Material: 0.080-inch-thick aluminum sheet.
 - a. Panel Finish: Manufacturer's baked enamel standard semigloss color finish with UV inhibitors.
 - 2. Edge Condition: Rounded.

2.5 GRAPHICS

- A. Surface-Applied, Die-Cut Vinyl Copy : Provide die-cut characters from nonreflective vinyl film with pressure-sensitive adhesive backing. Apply copy to exposed face of sign panel.

- B. "Handicap Parking" signs: See plans for size with white symbol of accessibility on blue background.
- C. Notification Sign: The contractor will post a sign at site 5 days before start of construction. Sign will be at least 36" wide x 24" high with 1- 1/2" tall letters stating:
 - 1. "PARKING LOT WILL BE CLOSED FROM (DATE) TO (DATE) FOR CONSTRUCTION".

2.6 ALUMINUM FINISHES

- A. Baked-Enamel Finish: Cleaned with inhibited chemical s; acid-chromate-fluoride-phosphate conversion coating; thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603, medium gloss.
 - 1. Color: As indicated on the drawings.

2.7 GALVANIZED STEEL FINISHES

- A. Surface Preparation: Clean surfaces of dirt, grease, and other contaminants. Clean welds, mechanical connections, and abraded areas and repair galvanizing according to ASTM A 780. Apply a conversion coating suited to the organic coating to be applied over it.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Excavation: In firm, undisturbed or compacted soil, drill or (using a post-hole digger) hand-excavate holes for each post to minimum diameter recommended by sign manufacturer, but at least four times the largest post cross-section.
 - 1. Excavate hole depths approximately 27 inches minimum below finished grade.
- B. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Check for alignment and hold in position until concrete has achieved its initial set.
- C. Set anchor bolts and other embedded items required for installation. Use templates furnished by suppliers of items to be attached.
- D. Install signs level, plumb, and at height indicated, with surfaces free from distortion.
- E. Unless otherwise directed by the Drawings, or the State's Representative, all regulatory and warning signs shall be installed with the bottom of the signs at

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Post and Panel Signs

minimum of 5 feet above roadway surface. All installations of posts and sign panels shall be in accordance with Section 56-2.02A of the CALTRANS Standard Specifications. The Contractor will be responsible for locating all underground utilities before digging.

END OF SECTION 10436

SECTION 10801 TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Toilet and bath accessories.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use room designations indicated on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Products: The design for toilet and bath accessories described in Part 2 are based on products indicated. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
 - 1. Toilet and Bath Accessories:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. General Accessory Manufacturing Co. (GAMCO).
 - e. McKinney/Parker Washroom Accessories Corp.

2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, No. 4 finish (satin), 0.0312-inch minimum nominal thickness, unless otherwise indicated.
- B. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- C. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

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Toilet and Bath Accessories

- D. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.
- E. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to the State's Representative.

2.3 TOILET AND BATH ACCESSORIES

- A. Grab Bars: One set at each accessible restroom.
 - 1. Basis-of-Design Product: Bobrick, 6806 Series, 6806 x 48 side, 6806 x 42 rear.
 - 2. Material: Stainless Steel, 0.05 inch thick.
 - 3. Mounting: Concealed.
 - 4. Gripping Surfaces: Smooth, satin finish.
 - 5. Outside Diameter: 1-1/2 inches for heavy-duty applications.
- B. Underlavatory Guard.
 - 1. Basis-of-Design Product: Brocar.
 - 2. Insulating Piping Coverings: White, antimicrobial, molded-vinyl covering for supply and drain piping assemblies intended for use at accessible lavatories to prevent direct contact with and burns from piping. Provide components as required for applications indicated with flip tops at valves that allow service access without removing coverings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install all units level, plumb, and firmly anchored in locations and at heights indicated.
 - 1. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.
- B. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items. Remove temporary labels and protective coatings.

END OF SECTION 10801

SECTION 13122
PRE-ENGINEERED MODULAR SHELTER

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Perform all work relating to a pre-engineered modular shelter, including transportation to park site and installation of product.
 - 1. It is the supplier's responsibility to insure that all components will fully comply to American Disabilities Act.
 - 2. It is the supplier's responsibility to insure that the building meets the requirements of the California Building Code.
 - 3. Manufacturer must provide stamped, engineered drawings prior to acceptance.
 - 4. Shelter manufacturer is responsible for coordinating the required foundation system with the General Contractor.
- B. System Performance: Provide a complete fully integrated, operational pre-engineered modular building capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior

1.2 NUMBER REQUIRED

- A. California State Parks requires one separate building: Building shall be at a minimum of 130 SF. And meet the minimum requirements shown on the documents.

1.3 SUBMITTAL FOR SHELTER

- A. The submittal shall clearly describe the following and shall comply to Section 01330.
- B. Supplier's capability to meet specific shelter architectural design criteria and site conditions to meet the California State Parks Accessibility Guidelines, 2009 edition.
- C. Shop drawings shall show wall and roof panels; details of materials, fabrication and assembly; framing profiles; fastener types and locations, flashing and sealant details.
- D. Erection drawings: Provide instructions and drawings, and develop erection procedures to enable field installation or repair of shelter.

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Pre-Engineered Modular Shelter

- E. Manufacturer's literature and data, provide manufacturer's information for wall and roof panels, and all accessories and equipment furnished.
- F. Supplier's sample maintenance manual.
- G. Stamped documents as required by 1.1, A., 3.
- H. A written schedule time line shall be submitted with bid.

PART 2 – PRODUCTS

2.1 SHELTER

A. Framing:

- 1. The shelter framework (columns, sills and headers) shall be fabricated using 6063-T5 extruded aluminum members.
- 2. Extrusion shapes shall be engineered to provide a framework of adequate structural integrity to satisfy the California Building Code, and to meet the requirements for snow, wind and seismic loading for the specific location.
- 3. Framing members shall be 2 ½" x 2 ½" x 1/8" thick (minimum) square extruded aluminum tubes. Mullions shall be 1 ½" x 2 ½" x 1/8" thick (minimum) square extruded aluminum tubes.
- 4. The framework shall be assembled with only stainless steel and aluminum fasteners to prevent rusting or electrolytic interaction with framing members.
- 5. Shelter framing components, and the method of fastening them to the supporting foundations shall be capable of withstanding lateral loads per the California Building Code.
- 6. Shelter shall allow for a slope adjustment of up to four (4") inches.

B. Roof, Window, Wall Panels:

- 1. Roof Configurations shall be: standing seam metal roofing, gable shape, constructed in an integral fascia/gutter member, min. of 1/8" thick. 6" fascia.
- 2. Window panels shall be a ¼" minimum thickness, and secured to the framing structure with special extrusions to provide a safe weather-protective enclosure. Window color shall be clear. Window material shall be mar-resistant polycarbonate glazing.
- 3. Finish of extruded aluminum framework, in accordance with the Aluminum Association shall be, Class 1 anodized, Dark Bronze.
- 4. Wall and Roof Panels shall be sealed weather tight for a water proof barrier in compliance with Fed. Spec. II-S-001657.

2.2 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Designers: Professional Civil engineer registered in the State of California.
 - 2. Manufacturer:
 - a. At least 5 years experience in prefabricated public restroom design/construction.
 - b. Production capacity to provide work required for this Project for completion 120-days from Notice to Proceed.
- B. Regulatory Requirements: Design building system to meet requirements for prefabricated structures in the State of California.

2.3 DELIVERY, STORAGE AND HANDLING

- A. Deliver and install prefabricated building and attached foundation in undamaged condition to site only when the Contractor and State is ready for installation.
- B. Protect products from damage and deterioration and provide Certificate of Insurance for value of building until accepted by State.

2.4 SPECIAL GUARANTEE

- A. Provide manufacturer's extended guarantee or warranty, with STATE OF CALIFORNIA named as beneficiary, in writing. Special guarantee shall provide for correction, or at the option of the STATE OF CALIFORNIA, removal and replacement of Work specified in the Specification section found *defective* during a minimum period of 5 years.

2.5 BUILDING SYSTEM MANUFACTURERS QUALITATIVE STANDARD

In order to define qualitative standards, products of the following manufacturers, meeting these Specifications, may be used on this Project:

- A. Tolar Manufacturing Company, Inc., 258 Mariah Circle, Corona, CA 92879.
- B. Other manufacturers that may meet the requirements:
 - 1. Porta-King Building Systems, 4133 Shoreline Drive, Earth City, MI 63045
 - 2. Barco Products, 11 N. Batavia Ave., Batavia, IL 60510
 - 3. Belson, 111 North River Road, North Aurora, IL 60542

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Pre-Engineered Modular Shelter

2.6 SYSTEM PERFORMANCE

Structural Loading:

- A. Building: Shall be designed for site soils resistance of 1,500 psf maximum to support dead load of building.
- B. Floor Live Load: 50 psf.
- C. Roof Load: 250 psf.
- D. Design Wind Loads: 120 mph
- E. Earthquake Load: In accordance with applicable building code for Seismic Zone 4 for the Project area.

PART 3 - EXECUTION

3.1 FINISHING

- A. Concrete will be furnished and troweled until all marks are removed.
- B. Exterior slabs will receive a light broom finish, which will allow water to drain out of the building.

3.2 INSTALLATION

- A. Location:
 - 1. General Contractor to provide exact location by stakes or other approved method.

END OF SECTION 13122

SECTION 15050
BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Piping materials and installation instructions common to most piping systems.
 - 2. Dielectric fittings.
 - 3. Sleeves.
 - 4. Escutcheons.
 - 5. Grout.

1.2 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants.
- E. Concealed, Exterior Installations : Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures.

1.3 QUALITY ASSURANCE

- A. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 - PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS

Basic Mechanical Materials and Methods

- A. Refer to individual Division 15 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

- A. Refer to individual Division 15 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
- C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- E. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.
- F. Welding Filler Metals: Comply with AWS D10.12.
- G. Solvent Cements for Joining Plastic Piping:
 - 1. ABS Piping: ASTM D 2235.
 - 2. CPVC Piping: ASTM F 493.
 - 3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
 - 4. PVC to ABS Piping Transition: ASTM D 3138.

2.3 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.
- E. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

- F. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.4 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with set screws.
- E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.
- F. PVC Pipe: ASTM D 1785, Schedule 40.
- G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.5 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
- C. One-Piece, Cast-Brass Type: With set screw.
 - 1. Finish: Polished chrome-plated and rough brass.
- D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
 - 1. Finish: Polished chrome-plated and rough brass.

2.6 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

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1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 15 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping to permit valve servicing.
- F. Install piping at indicated slopes.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Install piping to allow application of insulation.
- J. Select system components with pressure rating equal to or greater than system operating pressure.
- K. Install escutcheons for penetrations of walls, ceilings, and floors.
- L. Install sleeves for pipes passing through concrete and masonry walls, and concrete floor and roof slabs.
- M. Verify final equipment locations for roughing-in.
- N. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.2 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.
- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- H. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
 - 3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
 - 4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 - 5. PVC Nonpressure Piping: Join according to ASTM D 2855.

6. PVC to ABS Non pressure Transition Fittings: Join according to ASTM D 3138 Appendix.

3.3 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.4 GROUTING

- A. Clean surfaces that will come into contact with grout.
- B. Provide forms as required for placement of grout.
- C. Avoid air entrapment during placement of grout.
- D. Place grout around anchors.
- E. Cure placed grout.

END OF SECTION 15050

SECTION 15140 DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes domestic water piping from locations indicated to fixtures and equipment inside the building.

1.2 SUBMITTALS

- A. Water Samples: Specified in "Cleaning" Article in Part 3.

1.3 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 61, "Drinking Water System Components-Health Effects; Sections 1 through 9," for potable domestic water piping and components.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Transition Couplings: Coupling or other manufactured fitting the same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- B. Hard Copper Tube: ASTM B 88, Type K, water tube, drawn temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.
 - 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

2.2 VALVES

- A. Refer to Division 15 Section 15110 "Valves" for copper, bronze and brass, general-duty valves.

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PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
- B. Flanges may be used on aboveground piping, unless otherwise indicated.
- C. Domestic Water Piping: Use the following piping materials for each size range:
 - 1. NPS 1-1/2 and Smaller: Hard copper tube, Type K; copper pressure fittings; and soldered joints.
 - 2. NPS 2: Hard copper tube, Type K; copper pressure fittings; and soldered joints.

3.2 VALVE APPLICATIONS

- A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
 - 1. Shutoff Duty: Use bronze ball or gate valves for piping NPS 2 and smaller.
 - 2. Throttling Duty: Use bronze ball or globe valves for piping NPS 2 and smaller.
 - 3. Drain Duty: Hose-end drain valves.

3.3 PIPING INSTALLATION

- A. Refer to Division 15 Section 15050 "Basic Mechanical Materials and Methods" for basic piping installation.
- B. Extend domestic water service piping to exterior water distribution piping in sizes and locations indicated.
- C. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.
- D. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.
- E. Perform the following steps before operation:
 - 1. Close drain valves, hydrants, and hose bibbs.
 - 2. Open shutoff valves to fully open position.
 - 3. Remove plugs used during testing of piping and plugs used for temporary sealing of piping during installation.

4. Remove and clean strainer screens. Close drain valves and replace drain plugs.
- F. Check plumbing equipment and verify proper settings, adjustments, and operation. Do not operate water heaters before filling with water.
- G. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.4 JOINT CONSTRUCTION

- A. Refer to Division 15 Section 15050 "Basic Mechanical Materials and Methods" for basic piping joint construction.
- B. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

3.5 VALVE INSTALLATION

- A. Install sectional valve close to water main on each branch and riser serving plumbing fixtures or equipment. Use ball or gate valves for piping NPS 2 and smaller. Use butterfly or gate valves for piping NPS 2-1/2 and larger.
- B. Install drain valves for equipment, at base of each water riser, at low points in horizontal piping, and where required to drain water piping.
 1. Install hose-end drain valves at low points in water mains, risers, and branches.
 2. Install stop-and-waste drain valves where indicated.

3.6 HANGER AND SUPPORT INSTALLATION

- A. Refer to Division 15 Section 15060 "Hangers and Supports" for pipe hanger and support devices. Install the following:
 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
- B. Install supports according to Division 15 Section 15060 "Hangers and Supports."
- C. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
 2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
 3. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.

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- D. Install supports for vertical copper tubing every 10 feet.
- E. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.7 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment and machines to allow service and maintenance.
- C. Connect domestic water piping to exterior water service piping. Use transition fitting to join dissimilar piping materials.
- D. Connect domestic water piping to service piping with shutoff valve, and extend and connect to the following:
 - 1. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 15 Section 15410 "Plumbing Fixtures."
 - 2. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection.

3.8 FIELD QUALITY CONTROL

- A. Inspect domestic water piping as follows:
 - 1. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
 - 2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of the State's Representative:
 - a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - b. Final Inspection: Arrange for final inspection by the State's Representative to observe tests specified below and to ensure compliance with requirements.
 - 3. Reinspection: If the State's Representative find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
 - 4. Reports: Prepare inspection reports and have them signed by the State's Representative.
- B. Test domestic water piping as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
2. Leave uncovered and unconcealed new, altered, extended, or replaced domestic water piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
3. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
4. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.

3.9 CLEANING

A. Clean and disinfect potable domestic water piping as follows:

1. Purge new piping and parts of existing domestic water piping that have been altered, extended, or repaired before using.
2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Submit water samples in sterile bottles to the State's Representative. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

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Domestic Water Piping

END OF SECTION 15140

SECTION 15150
SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes soil and waste, sanitary drainage and vent piping inside the building.

1.2 SUBMITTALS

- A. Field quality-control test reports.

1.3 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with " NSF-dwv" for plastic drain, waste, and vent piping.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Flexible Transition Couplings for Underground Nonpressure Piping : ASTM C 1173 with elastomeric sleeve. Include ends of same sizes as piping to be joined and include corrosion-resistant metal band on each end.
- B. Transition Couplings for Underground Pressure Piping: AWWA C219 metal, sleeve-type coupling or other manufactured fitting same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- C. ABS Pipe: ASTM D 2661, Schedule 40, solid wall.
 - 1. ABS Socket Fittings: ASTM D 2661, made to ASTM D 3311, drain, waste, and vent patterns.
- D. ABS Special Fittings: ASTM F 409, drainage-pattern tube and tubular fittings with ends as required for application.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping pressure ratings may be used in applications below, unless otherwise indicated.

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- B. Flanges may be used on aboveground pressure piping, unless otherwise indicated.
- C. Aboveground, Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:
 - 1. NPS 1-1/4 and NPS 1-1/2: ABS pipe, ABS socket fittings, and solvent-cemented joints.
 - 2. NPS 2 to NPS 4: Hubless, cast-iron soil piping and one of the following:
 - a. Couplings: Heavy-duty, Type 304, stainless steel.
 - b. Couplings: Compact, stainless steel.
 - 3. NPS 2 to NPS 4: ABS pipe, ABS socket fittings, and solvent-cemented joints.
 - 4. NPS 2 to NPS 4: Cellular-core, ABS pipe; ABS socket fittings; and solvent-cemented joints.
- D. Underground, Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:
 - 1. NPS 2 to NPS 4: Hubless, cast-iron soil piping and one of the following:
 - a. Couplings: Heavy-duty, Type 304, stainless steel.
 - b. Couplings: Compact, stainless steel.
 - 2. NPS 2 to NPS 4: ABS pipe, ABS socket fittings, and solvent-cemented joints.

3.2 PIPING INSTALLATION

- A. Refer to Division 15 Section 15050 "Basic Mechanical Materials and Methods" for basic piping installation.
- B. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.
- C. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight. Refer to Division 15 Section 15050 "Basic Mechanical Materials and Methods" for wall penetration systems.
- D. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
- E. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change

direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

- F. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- G. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:
 - 1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
 - 2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
 - 3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
- H. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.
- I. Install ABS soil and waste drainage and vent piping according to ASTM D 2661.
- J. Install underground ABS soil and waste drainage piping according to ASTM D 2321.
- K. Do not enclose, cover, or put piping into operation until it is inspected and approved by the State's Representative.

3.3 JOINT CONSTRUCTION

- A. Refer to Division 15 Section 15050 "Basic Mechanical Materials and Methods" for basic piping joint construction.
- B. Cast-Iron, Soil-Piping Joints: Make joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
 - 1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.
 - 2. Hubless Joints: Make with rubber gasket and sleeve or clamp.
- C. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.4 HANGER AND SUPPORT INSTALLATION

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- A. Refer to Division 15 Section 15060 "Hangers and Supports" for pipe hanger and support devices. Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
- B. Install supports according to Division 15 Section 15060 "Hangers and Supports."
- C. Support vertical piping and tubing at base and at each floor.
- D. Install hangers for ABS and PVC piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
 - 2. NPS 3: 48 inches with 1/2-inch rod.
 - 3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.
- E. Install supports for vertical ABS and PVC piping every 48 inches.
- F. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.5 CONNECTIONS

- A. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.
- B. Connect drainage and vent piping to the following:
 - 1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 15 Section 15410 "Plumbing Fixtures."
 - 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by plumbing code.
 - 3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 15 Section 15430 "Plumbing Specialties."

3.6 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of the State's Representative.
 - 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

2. Final Inspection: Arrange for final inspection by the State's Representative to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If the State's Representative finds that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by the State's Representative.
- D. Test sanitary drainage and vent piping according to procedures of the State's Representative.
 1. Repair leaks and defects with new materials and re test piping, or portion thereof, until satisfactory results are obtained.
 2. Prepare reports for tests and required corrective action.

3.7 CLEANING

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.

3.8 PROTECTION

- A. Exposed ABS and PVC Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint. Color to match adjacent materials.

END OF SECTION 15150

SECTION 15410 PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes plumbing fixtures and related components.

1.2 DEFINITIONS

- A. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.

1.3 SUBMITTALS

- A. Product Data: Include selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports and indicate materials and finishes, dimensions, construction details, and flow-control rates for each type of fixture indicated.
- B. Operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the current approved edition of Title 24, California Building Code, CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; Public Law 101-336, "Americans with Disabilities Act"; and the current approved edition of California Code of Regulations, Title 24, California Building Code and California Plumbing Code about plumbing fixtures for people with disabilities.
- C. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," and the current approved edition of California Code of Regulations, Title 24, California Plumbing Code about water flow and consumption rates for plumbing fixtures.
- D. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.
- E. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

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Plumbing Fixtures

- F. Comply with the following applicable standards and other requirements specified for plumbing fixtures:
1. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
 2. Hand Sinks: NSF 2 construction.
 3. Vitreous-China Fixtures: ASME A112.19.2M.
 4. Water-Closet, Flush Valve, Tank Trim: ASME A112.19.5.
 5. Water-Closet, Flushometer Tank Trim: ASSE 1037.
- G. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:
1. Backflow Protection Devices for Faucets with Hose-Thread Outlet: ASME A112.18.3M.
 2. Faucet Hose: ASTM D 3901.
 3. Faucets: ASME A112.18.1M.
 4. Hose-Connection Vacuum Breakers: ASSE 1011.
 5. Hose-Coupling Threads: ASME B1.20.7.
 6. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
 7. NSF Materials: NSF 61.
 8. Pipe Threads: ASME B1.20.1.
 9. Supply and Drain Fittings: ASME A112.18.1M.
- H. Comply with the following applicable standards and other requirements specified for shower faucets:
1. Faucets: ASME A112.18.1M.
 2. High-Temperature-Limit Controls for Thermal-Shock-Preventing Devices: ASTM F 445.
 3. Manual-Control Antiscald Faucets: ASTM F 444.
 4. Pipe Threads: ASME B1.20.1.
 5. Pressure-Equalizing-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.
 6. Thermostatic-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.
- I. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:
1. Atmospheric Vacuum Breakers: ASSE 1001.
 2. Brass and Copper Supplies: ASME A112.18.1M.
 3. Manual-Operation Flushometers: ASSE 1037.
 4. Plastic Tubular Fittings and Piping: ASTM F 409.
 5. Sensor-Operation Flushometers: ASSE 1037 and UL 1951.
 6. Tubular Brass Drainage Fittings and Piping: ASME A112.18.1M.
- J. Comply with the following applicable standards and other requirements specified for miscellaneous components:
1. Floor Drains: ASME A112.21.1M.

2. Grab Bars: ASTM F 446.
3. Hose-Coupling Threads: ASME B1.20.7.
4. Off-Floor Fixture Supports: ASME A112.6.1M.
5. Pipe Threads: ASME B1.20.1.
6. Plastic Toilet Seats: ANSI Z124.5.
7. Supply and Drain Protective Shielding Guards: ICC A117.1.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.2 LAVATORY FAUCETS

- A. Lavatory Faucet, one at each lavatory: Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes and outlet with spout and fixture receptor.
1. Available Manufacturers:
 - a. Chicago, #857-E12-689.
 - b. Chicago, #802-665.
 - c. Delta, #701_HDF with 86T51 plate.
 - d. Delta, #2508-HDF.
 - e. Moen, #8886.
 - f. Sloan, "Optima" #8110/8111.
 - g. Symmons, #S-61-G.
 - h. Symmons, #S-72-G.
 - i. or approved equal.
 2. Maximum Flow Rate: 2.0 gpm, unless otherwise indicated.
 3. Finish: Polished chrome plate.
 4. Handle: Soft Touch, Push button, self closing.
 5. Drain: Grid.

2.3 SINK FAUCETS

- A. Sink Faucet, one at each sink: Include cold-water indicators; coordinate faucet inlets with supplies and fixture holes and outlet with spout and fixture receptor.

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Plumbing Fixtures

1. Available Manufacturers:
 - a. American Standard, #8340.243.
 - b. Chicago, 540-LD-897S-WXF.
 - c. Chicago, 540-LD897SWXFCP.
 - d. Delta, 28T2383.
 - e. Kolker, “Knoxford” K-8906.
 - f. Moen, 8121.
 - g. Symmons, “Temptrol 2000” #15-2.
 - h. or approved equal.
2. Maximum Flow Rate: 2.5 gpm, unless otherwise indicated.
3. Finish: Polished chrome plate.
4. Handle(s): Lever.
5. Vacuum Breaker: Required.
6. Drain: Stopper with chain.

2.4 FLUSHOMETERS

- A. Flushometer, one at each water closet: Cast-brass body with corrosion-resistant internal components, control stop with check valve, vacuum breaker, and copper or brass tubing, and polished chrome-plated finish on exposed parts.
 1. Available Manufacturers:
 - a. Delaney, “Flushboy” F534-1.6.
 - b. Sloan, “Optima” #8110/8111.
 - c. Sloan, “Royal” 143-1.6.
 - d. Zurn, “Aqua Sense” A #ZR 6000XL-WS1.
 - e. Zurn, Z-6143XL-ADA-WS1
 - f. or approved equal
 2. Trip Mechanism: Oscillating, lever-handle actuator.
 3. Consumption: 1.6 gal./flush.

2.5 TOILET SEATS

- A. Toilet Seat, one at each water closet: Solid plastic.
 1. Available Manufacturers:
 - a. American Standard, “Church” 9500C.
 - b. Kohler, “Lustra” K-4666-C.
 - c. Olonite. #95.
 - d. or approved equal

2. Color: White.

2.6 FIXTURE SUPPORTS

- A. Water-Closet Support, one at each water closet: Water-closet combination carrier designed for accessible and standard mounting height. Include single or double, vertical or horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space. Verify water closet support complies with requirements of selected water closet manufacturer.

1. Available Manufacturers:

- a. J. R. Smith, 0175, 0209, 0210, 0230, or 0240 Series.
- b. Josam, 12000 Series.
- c. Zurn, Z-1203, 1240, 1207 or 1208 Series.
- d. or approved equal.

- B. Lavatory Support, one at each lavatory: Type II, lavatory carrier with concealed arms and tie rod. Include steel uprights with feet. Verify lavatory support complies with requirements of selected lavatory manufacturer.

1. Available Manufacturers:

- a. J. R. Smith, 0790 or 720 (E)
- b. Josam, 17115.
- c. Zurn, Z-1253.
- d. or approved equal.

2.7 WATER CLOSETS

- A. Water Closets, one at each designated restroom: Wall-hanging, back-outlet, vitreous-china fixture designed for flushometer valve operation.

1. Available Products:

- a. American Standard, Inc., 2467.016.
- b. Crane Plumbing/Fiat Products, equivalent.
- c. Crane Plumbing/Fiat products, equivalent.
- d. Eljer, equivalent.
- e. Kohler Co., equivalent.
- f. Kohler Co., equivalent (ADA).
- g. or approved equal.

2. Style: Flushometer valve.

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Plumbing Fixtures

- a. Bowl Type: Elongated with siphon-jet design.
 - 1) Design Consumption: 1.6 gal./flush.
- b. Color: White.

2.8 LAVATORIES

- A. Lavatories, one at each designated restroom: Wall-hanging, enameled, cast-iron fixture.
 - 1. Available Products:
 - a. American Standard, Inc., "Regalyn" 4867.004.
 - b. Crane Plumbing/Fiat Products, "Westmont" 1318V.
 - c. Eljer, "Bucknell Lavatory" 052-0181.
 - d. Kohler Co., "Hudson" K-2861.
 - e. or approved equal.
 - 2. Size: 20 by 18 inches rectangular.
 - 3. Color: White.
 - 4. Faucet: Lavatory for separate drain.
 - 5. Supplies: NPS 3/8 chrome-plated copper with stops.
 - 6. Drain: Grid.
 - 7. Drain Piping: NPS 1-1/4 by NPS 1-1/2 chrome-plated cast-brass trap; NPS 1-1/2, 0.045-inch thick tubular brass waste to wall; and wall escutcheon.

PART 3 - EXECUTION

3.1 FIXTURE INSTALLATION

- A. Assemble fixtures, trim, fittings, and other components according to manufacturers' written instructions.
- B. For wall-hanging fixtures, install off-floor supports affixed to building substrate.
 - 1. Use carrier supports with waste fitting and seal for back-outlet fixtures.
 - 2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
 - 3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.
- C. Install back-outlet, wall-hanging fixtures onto waste fitting seals and attach to supports.
- D. Install wall-hanging fixtures with tubular waste piping attached to supports.

- E. Install fixtures level and plumb according to manufacturers' written instructions and roughing-in drawings.
- F. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
 - 1. Exception: Use ball, gate, or globe valve if stops are not specified with fixture. Refer to Division 15 Section "Valves" for general-duty valves.
- G. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
- H. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
- I. Install toilet seats on water closets.
- J. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- K. Install water-supply, flow-control fittings with specified flow rates in fixture supplies at stop valves.
- L. Install faucet, flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- M. Install traps on fixture outlets.
 - 1. Exception: Omit trap on fixtures with integral traps.
- N. Install escutcheons at piping wall ceiling penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Refer to Division 15 Section 15 050 "Basic Mechanical Materials and Methods" for escutcheons.
- O. Seal joints between fixtures and walls, floors, and counters using sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color. Refer to Division 7 Section 07920 "Joint Sealants" for sealant and installation requirements.

3.2 CONNECTIONS

- A. Connect water supplies from water distribution piping to fixtures.

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- B. Connect drain piping from fixtures to drainage piping.
- C. Supply and Waste Connections to Plumbing Fixtures: Connect fixtures with water supplies, stops, risers, traps, and waste piping. Use size fittings required to match fixtures. Connect to plumbing piping.
- D. Supply and Waste Connections to Fixtures and Equipment Specified in Other Sections: Connect fixtures and equipment with water supplies, stops, risers, traps, and waste piping specified. Use size fittings required to match fixtures and equipment. Connect to plumbing piping.

3.3 PROTECTION

- A. Provide protective covering for installed fixtures and fittings.
- B. Do not allow use of fixtures for temporary facilities unless approved in writing by the State's Representative.

END OF SECTION 15410

SECTION 15415 DRINKING FOUNTAINS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:

1. Drinking fountains.

1.2 SUBMITTALS

- A. Product Data: Include rated capacities; furnished specialties; and accessories for each type of fixture indicated.
- B. Operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; about fixtures for people with disabilities.
- B. Regulatory Requirements: Comply with requirements in the current approved edition of the California Code of Regulations, Title 24, California Building Code about fixtures for people with disabilities.
- C. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.2 DRINKING FOUNTAINS

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Drinking Fountains

- A. Drinking Fountains, one each at designated area shown on plans: Accessible, wall-hanging fixture made of stainless steel complying with ASME A112.19.2M for drinking fountains.

1. Available Products:

a. Metal Drinking Fountains:

- 1) Elkay Manufacturing Co., or equivalent.
 - 2) Filtrine Manufacturing Co., or equivalent.
 - 3) Halsey Taylor, or equivalent.
 - 4) Haws Corporation, Model 1001.
 - 5) Murdock, Inc., or equivalent.
 - 6) or approved equal.
2. Receptor Shape: Rectangular.
 3. Back Panel: Stainless-steel wall plate behind drinking fountain.
 4. Bubblers: Two, with automatic stream regulator, located on deck.
 5. Control: Push button or Push bar.
 6. Supply: NPS 3/8 with ball, gate, or globe valve.
 7. Drain: Grid with NPS 1-1/4 minimum horizontal waste and trap
 8. Support: Type I, water-cooler carrier.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Use carrier off-floor supports for wall-hanging fixtures, unless otherwise indicated.
- B. Use mounting frames for recessed water coolers, unless otherwise indicated.
- C. Set freestanding and pedestal drinking fountains on floor.
- D. Use chrome-plated brass or copper tube, fittings, and valves in locations exposed to view. Plain copper tube, fittings, and valves may be used in concealed locations.

3.2 INSTALLATION

- A. Install off-floor supports affixed to building substrate and attach wall-hanging fixtures, unless otherwise indicated.
- B. Install mounting frames affixed to building construction and attach recessed water coolers to mounting frames, unless otherwise indicated.
- C. Install fixtures level and plumb.

- D. Install water-supply piping with shutoff valve on supply to each fixture to be connected to water distribution piping. Use ball, gate, or globe valve. Install valves in locations where they can be easily reached for operation. Refer to Division 15 Section 15110 "Valves" for general-duty valves.
- E. Install trap and waste piping on drain outlet of each fixture to be connected to sanitary drainage system.

3.3 CONNECTIONS

- A. Connect water supplies from water distribution piping to fixtures.
- B. Connect drain piping from fixtures to drainage piping.

3.4 ADJUSTING

- A. Adjust fixture flow regulators for proper flow and stream height.

END OF SECTION 15415

SECTION 16000 ELECTRICAL

PART 1 - GENERAL

1.1 GENERAL

- A. Provide all equipment, materials, labor, and services required for the complete, proper, and substantial installation of all work shown on the plans. Include all patching, repairing, and painting to match existing, of any existing areas damaged or otherwise disturbed in the course of work done under this contract.

1.2 CODES

- A. All work shall be in strict accordance with the rules and regulations of the 2007 California Electrical Code (CEC), and all applicable state laws and ordinances.

1.3 FIELD CHECK

- A. Contractor shall be held to have examined the site and compared it with the plans and to have satisfied himself as to the conditions under which the work is to be performed. No subsequent allowance shall be made for any extra expense due to failure to make such examinations.

1.4 PERMITS/FEEES

- A. Contractor shall pay all inspections and other applicable fees and procure all licenses and permits necessary to the prosecution and completion of his work.
- B. Remove, replace, or relocate any existing electrical equipment or conduit, which may be necessary to complete the installation.
- C. Record "As-Built" drawings shall be kept up-to-date, and a complete reproducible set shall be furnished to the State's Representative at completion of work.

1.5 PROTECTION

- A. Protect all work, materials, and equipment from damage due to any cause. Materials should be brought on the job site in limited quantities to avoid storage problems.

1.6 WORKMANSHIP

- A. All equipment and material shall be installed in a neat and workman like manner, and workmanship of the entire job shall be first class in every way.

1.7 MATERIALS

- A. All materials and equipment shall be furnished as specified in strict accordance with these plans and specifications, and shall be new, listed by Underwriters' Laboratories, and meeting their requirements and bearing their labels wherever standards have been established and label service is regularly furnished by that agency.

1.8 FINAL REVIEW

- A. When Contractor considers the Work complete, submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of the State's Representative and are operational.
 - 5. Work is completed and ready for final review.

1.9 GUARANTEE

- A. Contractor shall guarantee all materials and equipment for a minimum of one (1) year from date of acceptance by the State's Representative.

END OF SECTION 16000

SECTION 16050
BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Raceways.
 - 2. Building wire and connectors.
 - 3. Supporting devices for electrical components.
 - 4. Electrical identification.
 - 5. Electrical demolition.
 - 6. Cutting and patching for electrical construction.

1.2 SUBMITTALS

- A. Product Data: For electrical components.
- B. Shop Drawings: Dimensioned plans and sections or elevation layouts and single-line diagram of electricity-metering component assemblies specific to this Project.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the current approved edition of the California Electrical Code (CEC), Article 100, by a testing agency acceptable to the State's Representative, and marked for intended use.
- B. Comply with NFPA 70, CEC, and NEC.

1.4 COORDINATION

- A. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work.
- B. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.
- C. The contractor shall coordinate with the servicing utility company for any trench inspection that the servicing utility company may require. The contractor shall notify the State's Representative a minimum of 4 working days prior to the servicing utility company's trench inspection date.

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Basic Electrical Materials and Methods

- D. Electrical service coordination for disconnects and reconnects with the State's Representative and utility company if applicable.
 - 1. The Contractor shall coordinate the disconnection of the existing electrical service and connection to the new service point with the utility company.
 - 2. The Contractor shall coordinate the installation and connection of exterior underground and overhead services, including provision for service entrances and electricity-metering components with the utility company.

PART 2 - PRODUCTS

2.1 RACEWAYS

- A. EMT: Electrical metallic tubing; ANSI C80.3, zinc-coated steel, with set-screw fittings.
- B. FMC: Flexible metal conduit; zinc-coated steel.
- C. IMC: Intermediate metal conduit; ANSI C80.6, zinc-coated steel, with threaded fittings.
- D. RMC: Rigid metal conduit; galvanized rigid steel; ANSI C80.1.
- E. RNC: Rigid nonmetallic conduit; NEMA TC 2, Schedule 40 PVC, with NEMA TC3 fittings.
- F. Raceway Fittings: Specifically designed for raceway type with which used.

2.2 WIRES, CABLES, AND CONNECTIONS

- A. Conductors, No. 10 AWG and Smaller: Solid copper.
- B. Conductors, Larger Than No. 10 AWG: Stranded copper.
- C. Insulation: Thermoplastic, rated 600 V, 75 deg C minimum, Type THW, THHN-THWN.
- D. Insulation for control wiring: Thermoplastic, rated 600 V, 75 deg C minimum, Type THW, THHN-THWN.
- E. Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.
 - 1. Connectors and splices for conductors sizes No. 10 AWG and smaller:
 - a. Wire pigtail connector of appropriate size for conductors. Ideal Pigtail connector or approved equal.

2. Connectors and splices for conductors sizes No. 8 AWG and larger.
 - a. Compression connector of appropriate size for conductors, insulated with epoxy filled bag. Burndy compression connector and Scotch-Loc epoxy filled bags or approved equal.
3. Connectors and splices for ground conductors sizes No. 10 AWG and smaller, inside building electrical:
 - a. Compression connector of appropriate size for conductor. Burndy compression connector or approved equal.
 - b. Wire nuts for connecting ground conductors sizes No. 10 AWG and smaller are not allowed.
4. Connectors and splices for conductors in pull boxes:
 - a. Compression connector of appropriate size for conductors, insulated with epoxy filled bag. Burndy compression connector and Scotch-Loc epoxy filled bags or approved equal.

2.3 SUPPORTING DEVICES

- A. Material: Cold-formed steel, with corrosion-resistant coating.
- B. Metal Items for Use in Damp Locations: Hot-dip galvanized steel.
- C. Slotted-Steel Channel: Flange edges turned toward web, and 9/16-inch-diameter slotted holes at a maximum of 2 inches o.c., in webs. Strength rating to suit structural loading.
- D. Slotted Channel Fittings and Accessories: Recommended by the manufacturer for use with the type and size of channel with which used.
 1. Materials: Same as channels and angles, except metal items may be stainless steel.
- E. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
- F. Expansion Anchors: Carbon-steel wedge or sleeve type.
- G. Toggle Bolts: All-steel springhead type.

2.4 ELECTRICAL IDENTIFICATION

- A. Identification Device Colors: Use those prescribed by ANSI A13.1, CEC, and these Specifications.
- B. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick.
- C. Tape Markers for Conductors: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

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- D. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.
- E. Engraved-Plastic Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch minimum thickness for signs up to 20 sq. in. and 1/8-inch minimum thickness for larger sizes. Engraved legend in black letters on white background.
- F. Warning and Caution Signs: Preprinted; comply with 29 CFR 1910.145, Chapter XVII. Colors, legend, and size appropriate to each application.
 - 1. Interior Units: Aluminum, baked-enamel-finish, punched or drilled for mechanical fasteners.
 - 2. Exterior Units: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate with 0.0396-inch, galvanized-steel backing. 1/4-inch grommets in corners for mounting.
- G. Fasteners for Nameplates and Signs: Self-tapping, stainless steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.5 CONCRETE BASES

- A. Concrete Forms and Reinforcement Materials: As specified in Division 3 Section "Cast-in-Place Concrete"
- B. Concrete: 3000-psi, 28-day compressive strength minimum.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

- A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom.
- B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.
- C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

3.2 RACEWAY APPLICATION

- A. Indoor Installations:
 - 1. Exposed: EMT except in wet or damp locations, use IMC.

2. Concealed in Walls or Ceilings: EMT.
3. In Concrete Slab: RMC.
4. Below Slab on Grade or in Crawlspace: RNC
5. Connection to Vibrating Equipment: FMC.
6. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise indicated.

B. Outdoor Installations:

1. Exposed: RNC.
2. Concealed: RNC.
3. Underground, Single Run: RNC.
4. Underground, Grouped: RNC.
5. Connection to Vibrating Equipment: LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4, unless otherwise indicated.

3.3 RACEWAY AND CABLE INSTALLATION

- A. Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.
- B. Keep legs of raceway bends in the same plane and keep straight legs of offsets parallel.
- C. Use RMC elbows where RNC turns out of slab.
- D. Install pull wires in empty raceways. Use No. 10 AWG zinc-coated steel or woven polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 24 inches of slack at each end of pull wires.
- E. Install raceways, 2-inch trade size and smaller, in maximum lengths of 200 feet and with a maximum of three 90-degree bends (270-degrees of total bends) or equivalent. Add pull boxes where necessary to accomplish this.

3.4 WIRING METHODS FOR POWER, LIGHTING, AND CONTROL CIRCUITS

- A. Application: Use wiring methods specified below to the extent permitted by applicable codes as interpreted by the State's Representative.
- B. Exposed Feeders: Insulated single conductors in raceway.
- C. Concealed Feeders in Ceilings Walls, Gypsum Board Partitions: Insulated single conductors in raceway.
- D. Concealed Feeders in Crawlspaces: Insulated single conductors in raceway.
- E. Exposed Branch Circuits Including in Crawlspaces: Insulated single conductors in raceway.

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- F. Concealed Branch Circuits in Ceilings, Walls, Gypsum Board Partitions: Insulated single conductors in raceway.
- G. Underground Feeders and Branch Circuits: Insulated single conductors in raceway.

3.5 WIRING INSTALLATION

- A. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.6 ELECTRICAL SUPPORTING DEVICE APPLICATION

- A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, slotted channel system components.
- B. Dry Locations: Hot-dip galvanized materials or nonmetallic, slotted channel system components.
- C. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four with, 200-lb minimum design load for each support element.

3.7 SUPPORT INSTALLATION

- A. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
- B. Size supports for multiple raceway or cable runs so capacity can be increased by a 25 percent minimum in the future.
- C. Support individual horizontal single raceways with separate, malleable-iron pipe hangers or clamps.
- D. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used.
- E. Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated:
 - 1. Wood: Wood screws or screw-type nails.
 - 2. Gypsum Board: Toggle bolts. Seal around sleeves with joint compound, both sides of wall.
 - 3. Masonry: Toggle bolts on hollow block and expansion bolts on solid block. Seal around sleeves with mortar, both sides of wall.
 - 4. Existing Concrete: Expansion bolts or threaded studs driven by powder charge and provided with lock washers.

5. Fasteners for Damp, Wet, or Weather-Exposed Locations: Stainless steel.
6. Light Steel: Sheet-metal screws.
7. Fasteners: Select so load applied to each fastener does not exceed 25 percent of its proof-test load.

3.8 IDENTIFICATION MATERIALS AND DEVICES

- A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.
- C. Self-Adhesive Identification Products: Clean surfaces before applying.
- D. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.
- E. Install continuous underground plastic markers during trench backfilling, for exterior underground power, control, signal, and communication lines located directly above power and communication lines. Locate 6 to 8 inches below finished grade. If width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches, overall, use a single line marker.
- F. Install warning, caution, and instruction signs where required to comply with 29 CFR 1910.145, Chapter XVII, and where needed to ensure safe operation and maintenance of electrical systems and of items to which they connect. Indoors install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.

3.9 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger, in all directions, than supported unit. Follow supported equipment manufacturer's anchorage recommendations and setting templates for anchor-bolt and tie locations, unless otherwise indicated.

3.10 DEMOLITION

- A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

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- B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.
- C. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.
- D. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.
- E. All equipment shown on the plans to be salvaged shall be delivered to a location as designated by the State's Representative.

3.11 CUTTING AND PATCHING

- A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.
- B. Repair, refinish and touch up disturbed finish materials and other surfaces to match adjacent undisturbed surfaces.

3.12 CONTINUITY OF SERVICE

- A. No interruption of services to any part of the existing facilities will be permitted without express permission in each instance from the State's Representative and State Park staff having jurisdiction over the project. Obtain written permission from the State's Representative for any interruption of the electrical power.
- B. The contractor shall organize their work to minimize the duration of the power interruption

END OF SECTION 16050

SECTION 16080 ELECTRICAL TESTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes general requirements for electrical field testing and inspecting. Detailed requirements are specified in each Section containing components that require testing. General requirements include the following:
 - 1. Qualifications of testing agencies and their personnel.
 - 2. Suitability of test equipment.
 - 3. Calibration of test instruments.
 - 4. Coordination requirements for testing and inspecting.
 - 5. Reporting requirements for testing and inspecting.

1.2 QUALITY ASSURANCE

- A. Testing Agency Qualifications: As specified in each Section containing electrical testing requirements and in subparagraph and associated subparagraph below.
 - 1. Independent Testing Agencies: Independent of manufacturers, suppliers, and installers of components to be tested or inspected.
 - a. Testing Agency's Field Supervisor for Power Component Testing: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Division 16 power component Sections.
- B. Test Equipment Suitability: Comply with NETA ATS, Section 5.2.
- C. Test Equipment Calibration: Comply with NETA ATS, Section 5.3.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL TESTS AND INSPECTIONS

- A. Tests are specified to be performed by an independent testing agency, prepare systems, equipment, and components for tests and inspections, and perform preliminary tests to ensure that systems, equipment, and components are ready for independent agency testing. Include the following minimum preparations as appropriate:

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Electrical Testing

1. Perform insulation-resistance tests.
 2. Perform continuity tests.
 3. Perform rotation test (for motors to be tested).
 4. Provide a stable source of single-phase, 208/120- V electrical power for test instrumentation at each test location.
- B. Test and Inspection Reports: In addition to requirements specified elsewhere, report the following:
1. Manufacturer's written testing and inspecting instructions.
 2. Calibration and adjustment settings of adjustable and interchangeable devices involved in tests.
 3. Tabulation of expected measurement results made before measurements.
 4. Tabulation of "as-found" and "as-left" measurement and observation results.

END OF SECTION 16080

SECTION 16120 CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.2 SUBMITTALS

- A. Field quality-control test reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFA CTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 CONDUCT ORS AND CABLES

- A. Manufacturers:
 - 1. Alcan Aluminum Corporation; Alcan Cable Div.
 - 2. American Insulated Wire Corp.; a Leviton Company.
 - 3. General Cable Corporation.
 - 4. Senator Wire & Cable Company.
 - 5. Southwire Company.
- B. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.

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Conductors and Cables

- C. Conductor Material: Copper, solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.
- D. Conductor Insulation Types: Type THHN-THWN.

2.3 CONDUCTORS AND SPLICES

A. Manufacturers:

- 1. AFC Cable Systems, Inc.
- 2. AMP Incorporated/Tyco International.
- 3. Hubbell/Anderson.
- 4. O-Z/Gedney; EGS Electrical Group LLC.
- 5. 3M Company; Electrical Products Division.

- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and in Crawlspace: Type THHN-THWN, single conductors in raceway.
- E. Exposed Branch Circuits, including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
- G. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.

3.2 INSTALLATION

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed

manufacturer's recommended maximum pulling tensions and sidewall pressure values.

- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- E. Support cables according to Division 16 Section 16050 "Basic Electrical Materials and Methods."
- F. Identify and color-code conductors and cables according to Division 16 Section 16050 "Basic Electrical Materials and Methods."
- G. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- H. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm).

3.3 FIELD QUALITY CONTROL

- A. Testing: Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
- B. Test Reports: Prepare a written report to record the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION 16120

SECTION 16130 RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. See Division 16 Section 16050 "Basic Electrical Materials and Methods" for supports, anchors, and identification products.
- C. See Division 16 Section 16071 "Seismic Controls for Electrical Work" for seismic restraints and bracing of raceways, boxes, enclosures, and cabinets.
- D. See Division 16 Section 16140 "Wiring Devices" for devices installed in boxes and for floor-box service fittings.

1.2 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets indicated.
- B. Shop Drawings: Show fabrication and installation details of components for raceways, fittings, boxes, enclosures, and cabinets.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

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Raceways and Boxes

2.2 METAL CONDUIT AND TUBING

A. Manufacturers:

1. AFC Cable Systems, Inc.
2. Alfalex Inc.
3. Anamet Electrical, Inc.; Anaconda Metal Hose.
4. Electri-Flex Co.
5. Grinnell Co./Tyco International; Allied Tube and Conduit Div.
6. LTV Steel Tubular Products Company.
7. Manhattan/CDT/Cole-Flex.
8. O-Z Gedney; Unit of General Signal.
9. Wheatland Tube Co.

B. Rigid Steel Conduit: ANSI C80.1.

C. Aluminum Rigid Conduit: ANSI C80.5.

D. IMC: ANSI C80.6.

E. EMT and Fittings: ANSI C80.3.

1. Fittings: Compression type.

F. FMC: Aluminum.

G. LFMC: Flexible steel conduit with PVC jacket.

H. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

2.3 NONMETALLIC CONDUIT AND TUBING

A. Manufacturers:

1. American International.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arco Corp.
4. Cantex Inc.
5. Certainteed Corp.; Pipe & Plastics Group.
6. Condux International.
7. ElecSYS, Inc.
8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; Division of Hubbell, Inc.
12. Spiralduect, Inc./AFC Cable Systems, Inc.
13. Thomas & Betts Corporation.

- B. RNC: NEMA TC 2, Schedule 40 and Schedule 80 PVC.
- C. RNC Fittings: NEMA TC 3; match to conduit or tubing type and material.
- D. LFNC: UL 1660.

2.4 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. Emerson/General Signal; Appleton Electric Company.
3. Erickson Electrical Equipment Co.
4. Hoffman.
5. Hubbell, Inc.; Killark Electric Manufacturing Co.
6. O-Z/Gedney; Unit of General Signal.
7. RACO; Division of Hubbell, Inc.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Co.; Adalet-PLM Division.
10. Spring City Electrical Manufacturing Co.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

- B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.
- D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- E. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
- F. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.
 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency - resistant paint.
- G. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

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Raceways and Boxes

2.5 FACTORY FINISHES

- A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.
- B. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors:

- 1. Exposed: Rigid steel.
- 2. Concealed: Rigid steel or IMC.
- 3. Underground, Single Run: Pabco wrapped rigid steel.
- 4. Underground, Grouped: RNC.
- 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
- 6. Boxes and Enclosures: NEMA 250, Type 3R.

B. Indoors:

- 1. Exposed: EMT.
- 2. Concealed: EMT.
- 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
- 4. Damp or Wet Locations: Rigid steel conduit.
- 5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:

- a. Damp or Wet Locations: NEMA, Type 4.

C. Minimum Raceway Size 3/4-inch trade size (DN 21).

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

- 1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
- 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

- F. Do not install aluminum conduits embedded in or in contact with concrete.

3.2 INSTALLATION

- A. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- B. Complete raceway installation before starting conductor installation.
- C. Support raceways as specified in Division 16 Section 16050 "Basic Electrical Materials and Methods."
- D. Install temporary closures to prevent foreign matter from entering raceways.
- E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above finished slab.
- F. Make bends and offsets so ID is not reduced. Keep legs of bends in same plane and keep straight legs of offsets parallel, unless otherwise indicated.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
 - 1. Install concealed raceways with a minimum of bends in shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.
- H. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches (50 mm) of concrete cover.
 - 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
 - 2. Space raceways laterally to prevent voids in concrete.
 - 3. Run conduit larger than 1-inch trade size (DN 27) parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
 - 4. Change from nonmetallic tubing to Schedule 80 nonmetallic conduit, rigid steel conduit, or IMC before rising above floor.
- I. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
 - 1. Run parallel or banked raceways together on common supports.
 - 2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

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Raceways and Boxes

J. Join raceways with fittings designed and approved for that purpose and make joints tight.

1. Use insulating bushings to protect conductors.

K. Tighten set screws of threadless fittings with suitable tools.

L. Terminations:

1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

M. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire.

N. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

O. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.

P. Flexible Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.

Q. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.

R. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

3.3 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 16130

SECTION 16511 LIGHTING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Interior lighting fixtures with lamps and ballasts.
 - 2. Lighting fixtures mounted on exterior building surfaces.

1.2 SUBMITTALS

- A. Product Data: For each type of lighting fixture scheduled, arranged in order of fixture designation. Include data on features, accessories, and finishes.
- B. Shop Drawings: Show details of nonstandard or custom fixtures. Indicate dimensions, weights, methods of field assembly, components, features, and accessories.
 - 1. Include wiring diagrams.
- C. Product Certificates: For each type of ballast for dimmer-controlled fixtures, signed by product manufacturer.
- D. Operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.
- C. FMG Compliance: Fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FMG.
- D. NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

Lighting Fixtures

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 LIGHTING FIXTURES

A. Fixture Schedules:

1. Products:
 - a. As noted in fixture schedule.
2. Voltage: 120-V ac.
3. Mounting: Pendant and Surface wall.
4. Lamps: As noted on plans.
5. Ballast Types and Features: Electronic, Low temperature.

2.3 FLUORESCENT LAMP BALLASTS

A. Description: Include the following features, unless otherwise indicated:

1. Designed for type and quantity of lamps indicated at full light output.
2. Externally fused with slow-blow type rated between 2.65 and 3.0 times the line current.

B. Electronic ballasts for linear lamps shall include the following features, unless otherwise indicated:

1. Comply with NEMA C82.11.
2. Ballast Type: Instant start, unless otherwise indicated.
3. Sound Rating: A.
4. Total harmonic distortion rating of less than 10 percent according to NEMA C82.11.
5. Transient Voltage Protection: IEEE C62.41, Category A.
6. Operating Frequency: 20 kHz or higher.
7. Lamp Current Crest Factor: Less than 1.7.

C. Ballasts for compact lamps in recessed fixtures shall have the following features, unless otherwise indicated:

1. Type: Electronic.
2. Power Factor: 90 percent, minimum.
3. Flicker: Less than 5 percent.
4. Lamp Current Crest Factor: Less than 1.7.
5. Electronic Ballast Operating Frequency: 20 kHz or higher.
6. Lamp end-of-life detection and shutdown circuit.

7. Transient Protection: Comply with IEEE C62.41 for Category A1 locations.
- D. Ballasts for compact lamps in nonrecessed fixtures shall include the following features, unless otherwise indicated:
1. Power Factor: 90 percent, minimum.
 2. Ballast Coil Temperature: 65 deg C, maximum.
 3. Transient Protection: Comply with IEEE C62.41 for Category A1 locations.

2.4 FLUORESCENT LAMPS

- A. T8 rapid-start low-mercury lamps, rated 32 W maximum, 2800 initial lumens (minimum), CRI of 75 (minimum), color temperature of 3500 K, and average rated life of 20,000 hours, unless otherwise indicated.
- B. Compact Fluorescent Lamps: CRI 80 (minimum), color temperature 3500 , average rated life of 10,000 hours at 3 hours operation per start, unless otherwise indicated.
1. T4, Twin Tube: Rated 5 W, 250 initial lumens (minimum).
 2. T4, Twin Tube: Rated 7 W, 400 initial lumens (minimum).
 3. T4, Twin Tube: Rated 9 W, 600 initial lumens (minimum).
 4. T4, Twin Tube: Rated 13 W, 825 initial lumens (minimum).
 5. T4, Double-Twin Tube: Rated 13 W, 900 initial lumens (minimum).
 6. T4, Double-Twin Tube: Rated 18 W, 1200 initial lumens (minimum).
 7. T4, Double-Twin Tube: Rated 26 W, 1800 initial lumens (minimum).

2.5 FIXTURE SUPPORT COMPONENTS

- A. Comply with Division 16 Section 16050 "Basic Electrical Materials and Methods" for channel- and angle-iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: 1/2-inch (13-mm steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture).
- C. Twin-Stem Hangers: Two, 1/2-inch (13-mm) steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.
- D. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated, 12 gage 2.68 mm.
- E. Wires For Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage (2.68 mm).

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Lighting Fixtures

- F. Rod Hangers: 3/16-inch (5-mm) minimum diameter, cadmium-plated, threaded steel rod.
- G. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.
- B. Support for Fixtures in or on Grid-Type Suspended Ceilings: Use grid for support.
 - 1. Install a minimum of four ceiling support system rods or wires for each fixture. Locate not more than 6 inches (150 mm) from fixture corners.
 - 2. Support Clips: Fasten to fixtures and to ceiling grid members at or near each fixture corner with clips that are UL listed for the application.
 - 3. Fixtures of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch (20-mm) metal channels spanning and secured to ceiling tees.
 - 4. Install at least one independent support rod or wire from structure to a tab on lighting fixture. Wire or rod shall have breaking strength of the weight of fixture at a safety factor of 3.
- C. Suspended Fixture Support: As follows:
 - 1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
 - 3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
 - 4. Continuous Rows: Suspend from cable.

END OF SECTION 16511